PREHOSPITAL TREATMENT PROTOCOLS

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AUTHORIZATION FOR PROTOCOLS

These protocols are issued by the Medical Direction and Practice Board and govern the practice of EMS licensees by the authority of 32 MRSA § 86.2-A. All Maine emergency physicians and the regional EMS programs were invited to participate in the review and adoption of these protocols through their MEMS Regional Council.

The Regional Medical Directors agree that when treatments are adopted in their regions, they will be consistent with these protocols.

These protocols will be continuously reviewed. New or revised protocols will be issued in adhesive-backed pages that can be easily placed over the protocol being replaced or on one of the blank pages provided at the end of the protocol book.

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DEFINITIONS

"ACLS" means advanced cardiac life support.

"Advanced Airway" means the skills of endotracheal intubation performed only by those who have completed practical training in each of these skills as approved by their Regional Medical Control.

"AHA" means the American Heart Association.

"ALS" (Advanced Life Support) means the ability to provide advanced level of medical care, which in the prehospital realm is critical care or paramedic. The potential skills may include the following: IV access, advanced airway, cardiac monitoring, and/or oral or parenteral medications.

"ALS (Advanced Life support) If Available" means that the patient shall receive the highest appropriate ALS intervention as soon as possible. The decision in this realm as to which interventions may be appropriate rests with the critical care or paramedic if they are available. If any skills other than basic life support are deemed necessary or initially implemented, an ALS response should be sought, with simultaneous dispatch if possible. The use of a medical priority dispatching program, approved by the regional medical director, is encouraged. When this cannot happen, the crew in attendance should bring ALS care and the patient together in the fastest of three ways:(1)ALS back-up at the scene; (2) ALS back-up met en route; or (3) ALS by hospital staff in the emergency department if prehospital rendezvous if not possible.

The BLSproviders on the scene may modify the ALS response as appropriate.

"Critical Care/Paramedic Back-up" means using an advanced life support resource when a presenting patient needs more than basic life support. As noted above, in the prehospital this usually indicates a critical care or paramedic response. An ALS back-up agreement should be written between EMS provider services routinely offering and accepting ALS back-up support. This would establish medical/operational/liability expectations of both services. These protocols cannot mandate any service to routinely offer or receive back-up. However, any decision in this regard, particularly to refuse to offer or accept ALS back-up, should be grounded in reasonable medical, operational, or financial considerations and should be reviewed by the individual service's legal counsel.

"ARC" means the American Red Cross.

"AVPU" means Alert, Verbal, Painful, or Unresponsive and refers to the patient's response.

"BP" in these protocols refers to the *systolic* blood pressure.

"Automatic Ventilation" automatic ventilators (time-cycled, pressure controlled) approved by Maine EMS, may be used to assist ventilations when an endotracheal tube is in place by the intermediate, critical care, or paramedic provider.

"Central Lines" means any IV catheter device which gains access to a patient's central circulation. EMS providers may access an indwelling central line (such as a port-a-cath); 1) in immediate life threatening situations when no other access is available, observing sterile technique, 2) and/or under MDPB/MEMS approved procedure/curriculum for accessing such devices.

"**EMS Provider**" means any person or service licensed by Maine EMSto provide emergency medical services.

"ET Flush" means a bolus of IV fluid (3-5 ml for pediatric patients; up to 10 ml for adults) into the endotracheal tube (ET) following ET administration of medications. Use of the ET for medication administration is to be considered a temporary route; IV access should be secured as soon as possible.

"Fluid Challenge" indicates maximum fluid administration achievable without pumps or other special equipment in the field setting. Specifically, running a large bore IV wide-open unit 300-500 ml of fluid has been administered, and repeating this process until a BP greater than 100 mm/Hg systolic is achieved. A true IObolus, at the appropriate dose with a syringe/3-way stop-cock assembly, is acceptable for pediatric patients.

"Greater/Less Than" In these protocols ">" means "greater than", and "<" means "less than". Example: "BP <100" means "BP less than 100".

"IO" in these protocols, means intraosseous access. IO may be used if an IV is not established within 90 seconds and that patient is unstable.

"IV" means any balanced electrolyte solutions may be used, such as Lactated Ringers and Normal Saline. Normal Saline is the fluid of choice for patients with history of renal failure, not Lactated Ringers. Recommended catheter size for rapid fluid resuscitation in adults is 14-18 gauge. If rapid fluid resuscitation is not required, smaller catheter sizes or heparin/saline locks may be used. Heparin used for this procedure is not considered a medication.

"NR" means a non-rebreather oxygen mask.

"PPV" means positive pressure ventilation device such as (in order of preference): mouth-to-mask ventilation with oxygen, two-person bag-valve-mask technique with oxygen.

"On Line Medical Contr ol" ("OLMC") refers to the on-line physician/physician assistant/nurse practitioner who is licensed as such by the State of Maine, authorized by a hospital to supervise EMS providers and willing to accept responsibility for directing the actions of pre-hospital EMSpersonnel consistent with these protocols.

"Pediatric Patient" in these protocols, means prepubertal (without pubic, axillary, or facial hair).

"Emergency Department" means a hospital that provides an organized Emergency Service or Department that is available twenty-four (24) hours a day, sever (7) days a week and has the capability to provide On-Line Medical Control, to evaluate, treat, stabilize, and to refer to an appropriate outside resource all persons who present themselves for treatment.

"Other Appropriate Destination" means a facility that has been approved by the Board of EMS to receive patients via ambulance who are in need of emergency care.

"MDPB" means Maine EMS Medical Direction and Practice Board, which consists of the six Regional Medical Directors, a physician representing the Maine Chapter of the American College or Emergency Physicians, and the State EMS Medical Director.

"Oxygen Therapy" (0_2") means as appropriate for patient.

FOREWORD

These protocols were developed for the following reasons:

1. To provide the EMS provider with a quick field reverence, and
2. To develop written standards of care which are consistent throughout the State of Maine.

Users of these protocols are assumed to have knowledge of more detailed and basic patient management principles found in EMS textbooks and literature appropriate to the EMS provider's level of training and licensure.

EMS providers are encouraged to contact Medical Control in any sit - uation in which advice is needed, not only in situations as directed by these written protocols.

To use these protocols as they were intended, it is necessary to know the philosophy, treatment principles, and definitions, which guided the physicians and other EMS providers who drafted these protocols:

1. **Assessment and treatment should very RARELY delay transport!** This is especially true for trauma patients and patients with chest pain. IV's should be started en route except in those situations where treatment at the scene is in the patient's best interest such as shock with prolonged extrication, or a cardiac patient when full ACLS care is available. Delays in transport should be discussed with Medical Control.
2. **Inability to establish voice contact with Medical Control.** There are rare situations where the patient is unstable and delay in treatment threatens the patient's life or limb. If, after good-faith attempts, the advanced EMT cannot contact Medical Control, then the advanced EMTis authorized to use any appropriate treatment

protocols as if they were standing orders. In such cases treatments must still be consistent with the advanced EMT's training and licensure. Continue attempts to contact medical control and document these attempts on the patient run record.

3. **Transports and transfers.** During transports/transfers, ambulance crews will follow these MEMS protocols, including use of only those medications and procedures for which they are trained and authorized by protocol in their own region.
4. **Hospital destination choice** . If a patient needs care which the ambulance crew, in consultation with Medical Control, believes cannot be provided at the most accessible hospital the patient will be transported to the nearest facility capable of providing that care upon the patient's arrival. If, with Medical Control consultation, a patient is believed to be too unstable to survive such a diversion, then the patient will be transported to the most accessible hospital with an emergency department. If Medical Control contact is not possible, the ambulance crew is authorized to make this determination.
5. Each region has the authority to develop protocols which designate the appropriate destination for patients transported from the scene.
6. **Treatments/drugs should be given in the order specified.** However, the MDPB recognizes that often treatments are delivered simultaneously and more than one protocol may be used. Medical Control may request treatments/drugs out of sequence for medical reasons.
7. **MEMS patient/run record** will be legible and thoroughly completed for each call, or for each patient when more than one patient is involved in a call. Services should strive to leave a completed copy of the patient/run report at the hospital before they leave. In rare circumstances, when it is not possible to complete this record before leaving the hospital, the services must complete this report and return the original copy to the hospital as soon as possible.

The research copy of the patient/run record must be forwarded to Maine EMS (or their designee) by the 15th of the following month.

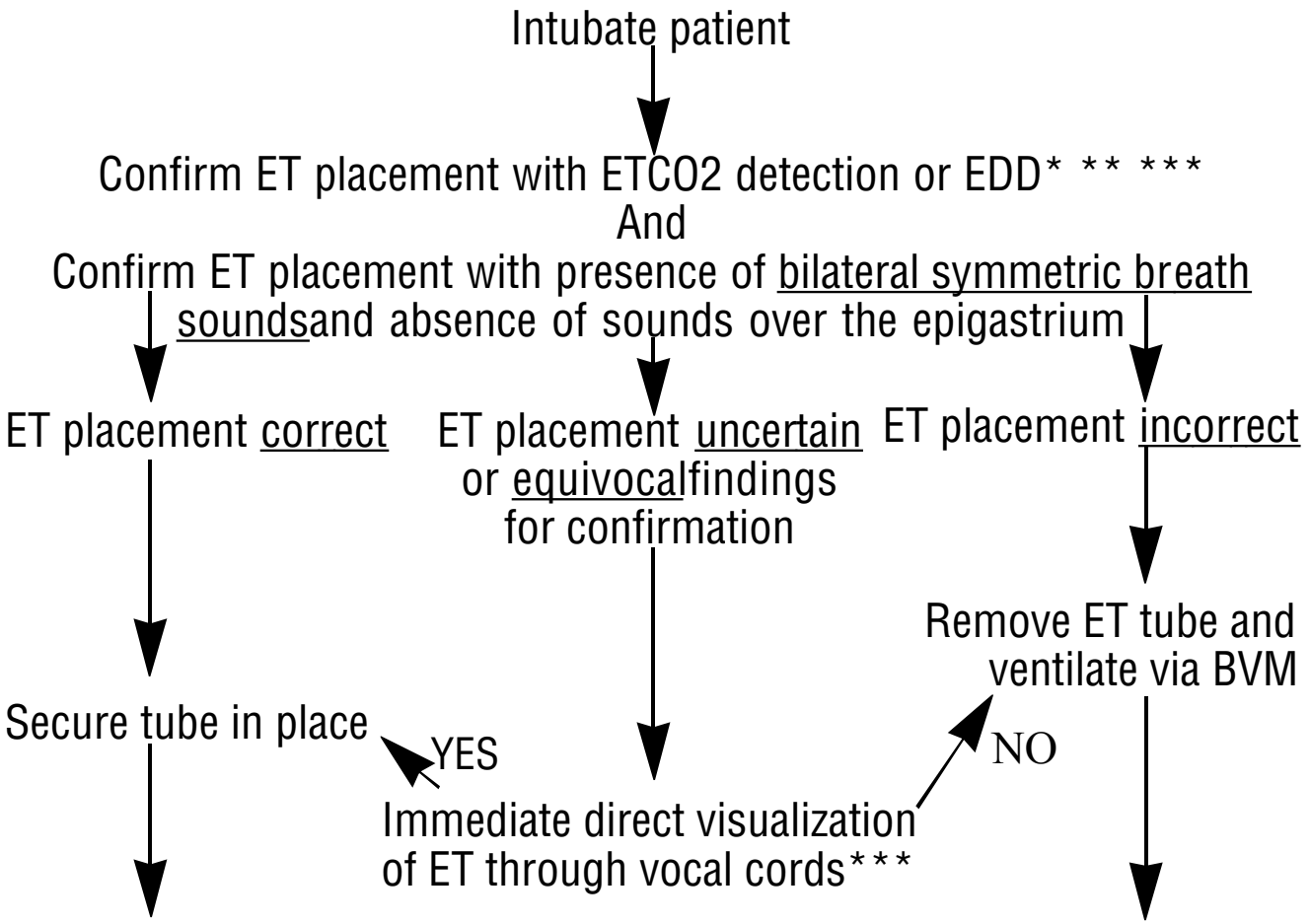
8. **Quality Assurance** All EMS providers and services must be in compliance with the Regional and State Quality Improvement Program to the satisfaction of the Regional Medical Director.
9. **EMS providers who will be assuming the responsibility for patient care will be responsible for assessing the care provided before their arrival and for all levels of car e** up to and including their level of training and licensure after their arrival. **If an EMS provider has not been trained in a particular treatment listed at his level, or that treatment is not within the EMS provider 's scope of practice, the treatment may not be performed.**
10. **Intermediate EMT s** are expected to follow these protocols within the limitations of the monitor/defibrillator available to them.
11. **Pulse oximetr y** may be used for informational purposes only. Any alterations of treatment based on pulse oximetry readings must be approved by On-Line Medical Control.
12. If a treatment is listed as requiring Medical Control permission at one level and is listed again without requiring Medical Control permission at a higher level, the higher-level EMT need not seek Medical Control permission.
13. These protocols represent a consensus of the MDPB. In unusual situations, **Medical Control may deviate from these protocols if done in the patient's best interest.** The reasons for deviating from these protocols must be documented in the patient's chart. Under such circumstances, if the advanced EMT agrees, the advanced EMT will verify and will comply with Medical Control orders; will fully document the deviation on the patient run record, and; will not consider the care rendered to be an emergency medical treatment to be routinely repeated.
14. **Once EMS personnel have arrived on the scene, they may inter - act with other medical personnel on the scene who are not a part of the organized EMS system responses in the following manner:**

a. Other Maine EMSlicensees may be invited to provide care within their scope of practice by the person in charge of the responding EMSunit.
b. The patient's own physician, physician assistant, or nurse practitioner may direct care as long as they remain with the patient (in their absence, direction of care is subject only to these protocols and On-Line Medical Control). You may assist this person within the scope of your practice and these protocols. Questions in this regard should be resolved by Medical Control. You may show this person Protocol page Black 1 ("Non-EMS System Medical Interveners") to assist with our explanation. Other health care providers in the home attending the patient (e.g. RN, LPN, CAN, Nurse Midwife, etc.) are bystanders who may be a valuable source of information. Any aid or treatment they wish to give must be authorized by OLMC. Any dispute over treatment/transport should be settled by OLMC.
c. Other unsolicited medical interveners must be Maine licensed physicians, nurses, nurse practitioners or physician assistants whose assistance you request. Protocol page Black 1 describes this, and should be shown to such interveners.
d. **Unsolicited medical interveners** are described on protocol page Black 1. This protocol should be shown to such interveners.

15. **Graduates of a wilderness EMT course** that has been approved by MEMS, may apply the principles of care taught in that course as defined.
16. Unless otherwise indicated, any treatment included in these protocols may be repeated after reassessment and with Medical Control permission.
17. **"External Pacing"** (where indicated in these protocols) should be performed if a pacer is available. Pacers are not required equipment.

18. Oxygen supplementation will be by nasal cannula or non-rebreather mask as appropriate.
19. MAST (or Pneumatic Anti-Shock Garment – PASG)– If MAST is available, contact Medical Control for **any** usage (there is no compelling indication for the routine use of MAST).

CONFIRMATION AND MONITORING OF ENDOTRACHEAL INTUBATION PATIENTS



*For cardiac arrest patients, consider placement of the ETtube as well as lack of pulmonary circulation in the interpretation of ETCO2 findings.
**Depending on device used, ETCO2 devices and EDDs may not be applicable to the pediatric patient.
***Nasotracheally-intubated patients should be assumed to have an incorrect placement if findings of breath sounds or ETCO2/EDD results are uncertain or equivocal.

RESPIRATORY DISTRESS WITH BRONCHOSPASM

(COPD, Emphysema, Chronic Bronchitis, Asthma)

CAUTION: RESPIRATORY DISTRESS MAY BE DUE TO MULTIPLE OTHER CAUSES FOR WHICH OTHER TREATMENTS MAY BE INDICATED, INCLUDING THE FOLLOWING:

Pulmonary Edema (see page Blue 5)
Anaphylaxis (see page Gold 1)
Pneumothorax (see page Green 11)

BASIC

1. 0_2 as appropriate.
2. If needed, assist ventilations with PPV using 100% 0_2.
3. Request ALSif available.

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4. For EMT-Basic level providers – assist with self-administered broncholdilator inhaler. Tell Medical Control the name of the inhaler. Medical Control will prescribe number of puffs.

INTERMEDIATE

5. Cardiac monitor.
6. Advanced Airway as needed. “See Blue 1”

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7. Contact Medical Control to administer Albuterol, 2.5 mg by nebulization (use 3 ml premix or 0.5 ml of 0.5% solution mixed in 2.5 ml of normal saline.*

***For EMT-Intermediates who have completed the update program and whose service has necessary medications available. “The Enhanced EMT-I, in consult with Local-On-Line-Medical-Control, may modify the Paramedic response as appropriate.”**

CRITICAL CARE / PARAMEDIC

8. Adult/Pediatric –
    a. Albuterol 2.5 mg by nebulization. **May repeat 1 time.**
    b. Albuterol MDI(multi-dose inhaler), 2-10 puffs with spacer. **May repeat 1 time.**

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9. Contact Medical Control for the following OPTION:

A. Repeated or continuous Albuterol by nebulization or inhaler.
B. Pediatric patient – Epinephrine 0.01 mg/kg (0.01 ml/kg of a 1:1,00 solution SC to a maximum of 0.3 mg.)
C. Adult patient – 0.3 mg Epinephrine (1:1,000) SC every 20 minutes.

RESPIRATORY ARREST
(with/without obstruction)

BASIC

1. Follow AHA respiratory ar rest procedure utilizing
   . 100% 0_2 with assisted ventilation (PPV). Use the AHA foreign body obstructed airway procedure as necessary.
2. Request ALSif available.

INTERMEDIATE / CRITICAL CARE

3. Magill forceps if indicated.
4. Advanced Airway as needed. “See Blue 1”
5. Cardiac monitor.
6. IVen route.

PARAMEDIC

7. With complete obstruction of the airway not relieved by other maneuvers, perform cricothyrotomy/cricothyrostomy.

PULMONARY EDEMA
(without shock)

If initial systolic BP< 100 refer to Red 18, Cardiogenic Shock.

BASIC

1. 0_2 as appropriate. Assist ventilations (PPV) if needed.
2. Assess for shock. If BP> 100, place in sitting position.
3. Request ALS if available.

INTERMEDIATE

4. Cardiac monitor.
5. IV en route.

CRITICAL CARE / PARAMEDIC

6. Intubate if respiratory arrest imminent, “See Blue 1”.
7. IV.

(Contact Medical Control if patient has taken Viagra within past 24 hours before giving nitroglycerin.)

8. Nitroglycerin 0.4 mg or 1 spray SL. Repeat every 2-3 min. as long as BP > 100.

Contact Medical Control for OPTIONS.

a. Furosemide (Lasix) 20-80 mg IV.
b. Morphine Sulfate 2-10 mg IV.

CHEST PAIN

(Suspected cardiac origin)

Do not give nitro if patient has taken viagra during the past 24 hours . Contact Medical Control for options.

BASIC

1. 0_2 – as appropriate.
2. Treat for shock if indicated.
3. Request ALS if available.

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4. For EMT – Basic level providers – Contact Medical Control for the OPTION of assisting with the administration of patient's own nitroglycerin.

INTERMEDIATE

5. IV en route.
6. Cardiac monitor.
7. Contact Medical Control for administration of:
    a. nitroglycerin 0.4 mg. SLor 1 spray, SL. May repeat two times at 5 minute intervals if BP > 100. Do not administer nitroglycerine if patient has taken Viagra within past 24 hours.*
    b. chewable aspirin, 160 mg. (or 320 mg depending on hospital preference), PO, if not contraindicated by allergy, bleeding/anticoagulant history, or ulcer disease.*

***For EMT – Intermediates who have completed the update program and whose service has necessary medications available. "The Enhanced EMT-I, in consult with Local-On-Line-Medical-Control, may modify the Paramedic response as appropriate."**

CRITICAL CARE / PARAMEDIC

8. Nitroglycerin 0.4 mg or 1 spray, SL. May repeat two times at 5 minute intervals if BP > 100. If no IV has been established, contact Medical Control prior to administration.
9. Chewable aspirin, 160 mg or (320 mg depending upon hospital preference), PO, if not contraindicated by allergy, bleeding/anticoagulant history, or active ulcer disease.

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10. Contact Medical Control for OPTIONS:
    c. Additional nitroglycerin.
    d. Morphine Sulfate 2 – 10 mg IV.
    e. Meperidine (Demerol) 25-100 mg IV if available and patient allergic to morphine and not on MAOinhibitors (Nardil, Parnate, Eutron, Marplan etc.).

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11. Treat underlying arrhythmia.
12. Obtain 12 lead EKGif equipment is available.

CHEST PAIN CHECKLIST

For chest pain of suspected cardiac origin, initiate therapy per protocol (Red 1 and 2), including the early use of aspirin and nitroglycerin if not contraindicated.

Use the Chest Pain Checklist (or local equivalent if available to assess the patient for potential thrombolytic therapy. Report the information as soon as practical to the receiving ED.

1. Is systolic BP < 180 mm Hg?	**YES**	NO
2. Is diastolic BP< 100 mm Hg?	**YES**	NO
3. Has pain persisted for > than 15 minutes?	**YES**	NO

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4. CVA or other serious central nervous system problems in preceding 6 months?	YES	**NO**
5. Surgery or major trauma in preceding 2 weeks?	YES	**NO**
6. Any bleeding problems?	YES	**NO**
7. Pregnant?	YES	**NO**

If the answers to all of these questions are those highlighted (first three "yes", last four "no"), this patient may be a candidate for thrombolytic therapy and should be expedited to the ED. Inform the ED staff of this information as soon as practical.

You may copy and use this page as your check-list, or you may use a check-list recommended by your usual receiving hospital which contains at least these questions.

GUIDELINES TO THE PREHOSPITAL USE OF 12-LEAD EKG BY THE ALS PROVIDER (Intermediate, Critical Care or Paramedic)

1. Prehospital 12-lead EKG is intended as an optional device and is encouraged for increasing diagnostic information regarding the chest pain/cardiac patient.
2. Acquisition of a 12-lead EKG should be considered in all patients with chest pain or a potential cardiac complaint/diagnosis.
3. **Acquisition of the 12-lead EKG should not delay patient transpor t or the initiation of chest pain/cardiac treatment protocols.**
4. Transmission of 12-lead EKG or presentation of prehospital 12-lead EKG to treating personnel at the receiving ED, is intended to augment patient triage and facilitate rapid identification of a potential thrombolytic candidate.

SEMI-AUTOMATIC
EXTERNAL DEFIBRILLATOR
(AED)

(AED is intended for adults and children > 8 years and weighing at least 60 lbs. Contact Medical Control for any other situations.)

1. Verify cardiac arrest, time of arrest, and request ALS if available.
2. Begin CPR while applying AED.
3. Apply the leads, (no leads within 6 inches of pacemaker/defibrillator product) remove all medication patches from patient skin, clean skin, clear patient, and activate machine.
4. Follow AED machine's instruction and deliver up to three (3) shocks, if needed. For AED, which ask the operator to set shock level, use 1st shock: 200J, 2nd shock: 200-300J, 3rd and subsequent shocks: 360J.
5. If patient regains pulse, assist respirations, monitor pulse and turn off AED(unless AED's instruction manual contradicts this). If patient arrests again, the AED should be programmed to defibrillate at the level which was previously successful, if applicable to specific AED.

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6. If the patient remains in cardiac ar rest, continue CPR for at least 60 seconds, then repeat sequence of three shocks. Transport, **then** contact Medical Control.

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7. If a Critical Care/Paramedic arrives with manual defibrillation capabilities, discontinue the AED and use the manual defibrillator according to the appropriate protocol. Any defibrillations required by the protocol, which have already been given by the AED, need not be repeated. (Continue with treatment called for in protocol following the initial defibrillations).

CARDIAC ARREST OR ARRHYTHMIAS

BASIC

1. 0_2 as appropriate. Ventilate if patient is in respiratory arrest.
2. CPR if cardiac arrest.
3. Attach AED if cardiac arrest (page Red 5).
4. Request ALS if available.

INTERMEDIATE / CRITICAL CARE / PARAMEDIC

5. Cardiac monitor and treat arrhythmias following the appropriate algorithm and your training and level of licensure.
    a. Ventricular Fibrillation (Red 7).
    b. Ventricular Tachycardia (Red 7 or 9).
    c. Asystole (Red 11).
    d. Pulseless Electrical Activity (Red 12).
    e. Bradyarrhythmias and Heart Block (Red 14).
    f. Supraventricular Tachycardia (Red 16).
    g. Premature Ventricular Ectopy (PVCs) (Red 17).

6. Advanced Airway as needed, "See Blue 1", and establish IV (Intermediates en route), per specific arrhythmia protocol.

Note: The algorithms for cardiac arrest or arrhythmias in the following pages reflect the MEMS Medical Direction and Practice Board's interpretation of ACLS guidelines, as they should be used in the prehospital setting.

VENTRICULAR FIBRILLATION / PULSELESS VENTRICULAR TACHYCARDIA

Intermediate / Critical Care / Paramedic (up to level of training)

Check Pulse – If No Pulse

↓

Precordial thump (if cardiac arrest witnessed)

↓

CPR Until Defibrillator or AED is Available

↓

Check Monitor for Rhythm or Analyze with AED
If VF or Pulseless VT

↓

Defibrillate up to 3 times if necessary (200J, 200J to 300J, 360J, or equivalent biphasic: Accelerating or fixed per mfr setting/recommendations)*
If severe hypothermia go to Yellow 8

↓

CPRif No Pulse

↓

Intubate if possible**, ***

↓

Establish IV

↓

Epinephrine, 1:10,000, 1.0 mg IV Push (2.0 mg ET Flush)
(repeat every 3 – 5 minutes)

↓

Defibrillate: 1 X 360J or equivalent biphasic

↓

Lidocaine, 1.5 mg/kg IVPush (2.0 – 3.0 mg/kg ET Flush)

↓

Defibrillate: 1 X 360J or equivalent biphasic

↓

Lidocaine, 1.5 mg/kg IVPush, may be repeated
After 10 minutes. ET dose is 3mg/kg.

↓

Defibrillate: 1 X 360J or equivalent biphasic

↓

Magnesium 2.0 gm IV Push

↓

Defibrillate: 1 X 360J or equivalent biphasic

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* If return of spontaneous circulation (ROSC) is established, contact Medical Control and follow appropriate protocol for patient rhythm.

** Intermediate EMT's should continue CPR, transport, establish IV en route, and contact Medical Control. If using manual defibrillator, may attempt defibrillation X 3 per training.

*** See Endotracheal Intubation protocol: Blue 1.

CRITICAL CARE / PARAMEDIC

1. Contact Medical Control for OPTION of Sodium Bicarbonate and orders on continuing ACLS or termination of resuscitation.
2. Upon successful conversion from V-Tach or V-Fib (if no second degree Type II AV block or 3rd degree AV block is present) contact Medical Control for options of:
    a. Lidocaine bolus.
    b. Lidocaine drip.

WIDE COMPLEX TACHYCARDIA (PROBABLE VENTRICULAR TACHYCARDIA)

INTERMEDIATE / CRITICAL CARE / PARAMEDIC (up to level of training)

No Pulse ➜ Treat as Ventricular Fibrillation/Pulseless V-Tach

Pulse is Present

BP>100
Alert/comfortable/
HR>150 (if heart rate<150, contact Medical Control)

↓

O_2
Nonrebreather Mask

↓

IV*

↓

Contact Medical Control for OPTIONof:

↓

Lidocaine 1.5 Mg/kg IVPush
**Lidocaine 0.5-0.75 Mg/kg IV Push
Every 5–10 minutes
Until V.T. resolves
Or 3 mg/kg given

Contact Medical Control for

BP<100 or Chest Pain or shortness of breath
Or altered LOC

↓

O_2 Nonrebreather Mask

↓

IV*

↓

Contact Medical Control for OPTIONof:
A. Diazepam (Valium) 5-10 mg IV

B. Morphine Sulfate 2-10 mg IV
C. Synchronized cardio-version

↓

100 Joules

↓

200 Joules

Unconscious and
BP<100 or
unconscious with
Pulmonary edema

↓

O_2 Nonrebreather
Big Valve Mask

↓

Defibrillate (unsynchronized cardioversion)

↓

100 Joules

↓

200 Joules

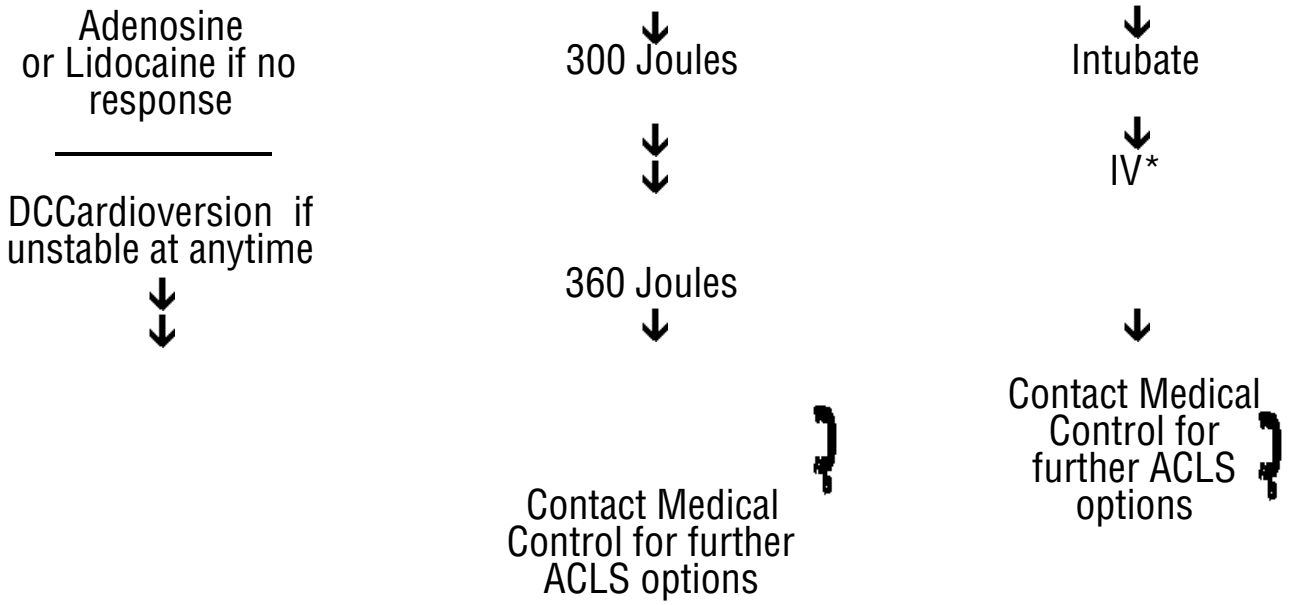
↓

300 Joules

↓

360 Joules

↓



* At this point, EMT-Intermediates should monitor pulse, transport, establish IV en route, and contact Medical Control.

ASYSTOLE

Should be confirmed in two leads, if possible.
If rhythm is unclear and possible ventricular fibrillation, treat as VF.*

INTERMEDIATE / CRITICAL CARE / PARAMEDIC
(Up to level of training)
CPR
↓
Intubate if possible**
↓
Establish IV
↓
Consider treatable causes

(Hypoxia, Hyperkalemia, Hypokalemia, Pre-existing Acidosis, Drug Overdose, Hypothermia)
If available, external pacing for witnessed onset of asystole
↓
Epinephrine, 1:10,000, 1.0 mg IVPush (2.0 mg ETFlush)
(repeat every 3 – 5 min.)
↓
Atropine, 1.0 mg IVPush (2.0 mg ETFlush)
(repeat every 3-5 min. up to 0.04 mg/kg (0.08 mg/kg/ET)

Contact Medical Control for the following OPTIONS:
A. Sodium Bicarbonate.
B. Termination of resuscitation.***

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*Survey scene for evidence of DNR, living will, orange bracelet, etc.

**EMT-Intermediates should continue CPR, transport, establish IVen route, and contact Medical Control. See Blue 1.

***Consider for unknown down time, irreversible signs of death, no response after 10 minutes of efforts, or unwitnessed arrest event.

PULSELESS ELECTRICAL ACTIVITY

PEA INCLUDES:
Electromechanical Dissociation (EMD)
Pseudo – EMD
Idioventricular Rhythms
Ventricular Escape Rhythms
Brady Asystolic Rhythms
Post Defibrillation Idioventricular Rhythms

INTERMEDIATE / CRITICAL CARE / PARAMEDIC
(Up to level of training)

Document Rhythm
↓
Continue CPR
↓
Intubate if possible*
↓
Establish IV
↓
IVNormal Saline wide open
↓
Epinephrine, 1:10,000; 1.0 mg IV
(2.0 mg ETFlush)
(repeat every 3 – 5 min.)
↓
If HR < 60, Atropine 1.0 mg IVPush (2.0 mg ETFlush)
(Repeat every 3 – 5 min. until maximum of 0.04 mg/kg
0.08 mg/kg ET)
↓
↓

Contact Medical Control 

A. Consider treatable causes: Hypovolemia, Hypoxia, Cardiac Tamponade, Tension Pneumothorax, Hypothermia, Massive Pulmonary Embolism, Drug Overdoses such as Tricyclics, Digitalis, B-Blockers, Calcium Channel Blockers, Hyperkalemia, Acidosis, and Massive Acute Myocardial Infarction.
B. Consider for unknown down time, ir reversible signs of death, no response after 10 minutes of efforts, or unwitnessed arrest event.

- At this point EMT-Intermediates should continue CPR, transport, establish IVen route, and contact Medical Control. See Blue 1.

BRADYCARDIA

(Heart Rate < 60 beats/min.)

CRITICAL CARE / PARAMEDIC

Signs or Symptoms: Blood pressure less than 100 mm Hg, Premature ventricular contractions, altered mental status, Chest pain, or dyspnea, cyanosis/pallor.

↓

No

↓

O_2 As appropriate

↓

Observe & Transport

Yes

↓

O_2 as appropriate

↓

Atropine, 0.5 – 1.0 mg. IV*
Should be given in repeat doses
(Every 3 – 5 minutes up to a max dose 0.04 mg/kg)**

↓

Apply external pacer

Initiate Transcutaneous Pacing (TCP) for patients who do not respond to atropine; if serious signs or symptoms, do not delay TCP while awaiting IV access or for atropine to take effect. Consider premedicating with Diazepam (Valium) 5 – 10 mg/IV, or Morphine Sulfate 2 – 10mg/IV. Notify medical control as soon as possible

↓

Continued Signs and Symptoms?

↓

No

↓

Observe & Transport

Yes

↓

Contact Medical Control for the Following OPTIONS:

A. Repeat Atropine

B. Dopamine (800 mg in 500 ml, or premix). Titrate to maintain BP > 100 (5 – 20 mcg/kg/min.)

NOTE: Application of TCP should be considered if deterioration is anticipated because of the following:

A. Observed sinus pauses

B. Episodes of 2nd degree Type II, or 3rd degree AV block.

*Transplanted denervated hearts will not respond to atropine. Proceed to pacing, catecholamine infusion, or both.

**Atropine should be used with caution in type II AV block and new third-degree block with wide QRS complexes.

SUPRAVENTRICULAR TACHYCARDIA

(with narrow QRS complexes)

INTERMEDIATE

1. Cardiac monitor (if unconscious and pulseless then treat as pulseless VT– Red 7).
2. IVen route.

CRITICAL CARE / PARAMEDIC

3. Contact Medical Control for the following OPTIONS:
   A. Valsalva maneuver.
   B. Adenosine 6 – 12 mg IVrapid push
      Followed by rapid saline bolus.
   C. Premedication with Diazepam (Valium)
      5 – 10 mg IVor Morphine Sulfate 2 – 10 mg IV and synchronized cardioversion.*

*Cardioversion should initially be 50 joules, then 100 joules, then 200 joules, then 300 joules, then 360 joules for adults.

PREMATURE VENTRICULAR ECTOPY (PVCs)

BASIC (NOTE: PVCs must have been identified by physician, physician assistant, nurse practitioner or nurse.)

1. 0_2 as appropriate.
2. Request ALS if available.

INTERMEDIATE

3. Cardiac monitor.
4. IV en route if PVCs confirmed on monitor.

CRITICAL CARE / PARAMEDIC

5. Contact Medical Control to discuss Lidocaine 1.5 mg/kg IV slow push no more than 50 mg/minute if the patient has chest pain suggesting MI, sinus rate > 60 BPM, and any one of the following:

   A. PVCs more than 6/min. or
   B. Multifocal PVCs or
   C. Sequential (coupling) PVC's or
   D. PVCs near T wave (R on T) or
   E. More than 3 PVCs in a row (i.e. nonsustained V. tach)

6. If PVCs continue, contact Medical Control for any of the following OPTIONS:
   A. Lidocaine drip (page Gray 24).
   B. Repeat Lidocaine bolus.

NOTE: If rate less than 60/minute, PVCs may be "escape PVCs" rather than PVCs from an irritable focus and lidocaine is contraindicated. In this situation contact Medical Control for the OPTIONof Atropine 0.5 mg IV.

CARDIOGENIC SHOCK

BASIC

1. O_2 as appropriate.
2. Request ALS if available.

INTERMEDIATE

3. Cardiac Monitor.
4. IV TKOen route.

---

5. Contact Medical Control with following information: vital signs, lung sounds, cardiac rhythm, pedal edema assessment for OPTION of:
    A. Fluid challenge.

CRITICAL CARE / PARAMEDIC

---

6. Contact Medical Control for the following OPTIONS:
   - Dopamine (800 mg in 500 ml, or premix). Titrate to maintain BP > 100.

ALLERGY / ANAPHYLAXIS

BASIC

1. 0_2 as appropriate.
2. If shock present, treat.
3. Request ALS if available.
4. Assess degree of allergic reaction:
    A. Mild – generalized hives and wheezing.
    B. Severe – life threatening respiratory compromise. (examine for swollen tongue, uvula, etc.) or BP < 100.
5. Consider local measures to prevent absorption.

---

6. Contact Medical Control to assist administration of patient's own anaphylaxis kit.

INTERMEDIATE

7. IV en route.
8. Cardiac monitor.
9. If shock present, perform fluid challenge.

---

10. Contact Medical Control for OPTIONof administration of Epinephrine 0.3mg, 1:1,000, SC.*

***For EMT-Intermediates who have completed the update program and whose service has necessary medications available. "The Enhanced EMT-I, in consult with Local-On-Line-Medical-Control, may modify the Paramedic response as appropriate."**

CRITICAL CARE / PARAMEDIC

11. Advanced Airway as needed. "See Blue 1"
12. For SEVEREreaction; (life threatening respiratory compromise or BP < 100)

A. Epinephrine:
   1. Adult: 0.3 mg (0.3 ml of 1:1,000) SC
   2. Pediatric: 0.01 mg/kg (0.01 ml/kg of 1:1,000)SC, up to maximum of 0.3 mg.
B. Diphenhydramine (Benadryl) 25 – 50 mg IV, IM, PO.
C. Albuterol, 2.5 mg by nebulization. **May repeat once.**

Contact Medical Control for repeat options.

ADULT COMA

(Decreased Level of Consciousness)
(Assess for trauma, drugs, diabetes, breath odor,
needle tracks, medical alert tags)
(If known diabetic, see page Gold 4-Diabetic Emergencies)

BASIC

1. Immobilize spine if indicated.
2. O_2 as appropriate. Assist ventilations if needed.
3. Request ALS if available.

INTERMEDIATE

4. Advanced airway as needed. “See Blue 1”:
5. IV en route.
6. Draw blood as IV established or do finger stick, to measure blood glucose using MEMS approved/technique/device.
7. Cardiac monitor.
8. If shock present, perform fluid challenge.

CRITICAL CARE / PARAMEDIC

9. Administer the following.:
    A. Thiamine 100 mg IV
    B. **If blood glucose < 80 mg dl administer Dextrose 25 gm (50 ml of 50% solution IV).**
    C. Naloxone (Narcan) 0.4-2.0 mg IV, ET, IM (if respirations < 12 per minute be aware that patient may become combative and may need restraint).

---

10. Contact Medical Control for the following OPTIONS:
    A. Repeat bolus of D_{50} IV.
    B. Repeat bolus of Naloxone (Narcan) 0.4-2.0 mg IV, ET or IM.
    C. Glucagon 1 mg IM(if IVunavailable for administration of Dextrose).

DIABETIC EMERGENCIES
(For Patients With Known Diabetes)

BASIC

1. O_2 as appropriate.
2. Request ALS if available.
3. If patient is conscious and able to swallow, give glucose orally.

Glucose paste is to be administered as quickly as possible, in the absence of any glucometer reading, in patients presenting with the signs/symptoms of diabetic emergency.

INTERMEDIATE

4. IV en route.
5. Draw blood as IV established or do finger stick, to measure blood glucose using MEMS approved technique/device.
6. Cardiac monitor.

---

7. Adult. If Blood Glucose is less that 80 mg dl, contact Medical Control for OPTION of administering D_{50}.*

***For EMT – Intermediates who have completed the update program and whose service has necessary medications available. "The Enhanced EMT-I, in consult with Local-On-Line-Medical-Control, may modify the Paramedic response as appropriate."**

CRITICAL CARE / PARAMEDIC

8. Dextrose
   - A. Adult. **If Blood Glucose < 80 mg dl administer Dextrose for adult coma and diabetic emergencies.**
   - B. If IVunavailable, administer Glucagon 1 mg IM.
   - C. Pediatric – Dextrose 10% (dilute 1 ml of D_{50} in 4 ml IV fluid or use pre-mix) 5 ml/kg IV, IO up to 40 kg (above that weight, use adult dose of D_{50}). If IV, IO access is unavailable administer Glucagon 0.5 mg IM.
   - D. Repeat Glucose Measurement.

---

9. Contact Medical Control for OPTION of repeating Dextrose.

SEIZURES

BASIC

1. O_2 as appropriate.
2. Left lateral recumbent position and protect patient from injury.
3. Spinal immobilization if indicated. “See Green 6”
4. Request ALS.

INTERMEDIATE

5. Advanced Airway as needed. “See Blue 1”
6. Cardiac monitor.
7. IV en route.
8. Draw blood as IVestablished or do finger stick, to measure blood glucose using MEMS approved technique/device.

CRITICAL CARE / PARAMEDIC

9. Adult
    A. Diazepam (Valium) 2.5 mg IV, IM increments to maximum of 10 mg for active seizures. Check vital signs before each increment if possible.
10. Pediatric
    Advanced Airway as needed. “See Blue 1”
    A. Diazepam (Valium) 0.2 mg/kg IV, IO. May be repeated. Give at rate of 5 mg/minute (maximum of 10 mg).
    B. Diazepam (Valium) 0.5 mg/kg rectally via well lubricated, needleless 1 ml plastic syringe (maximum of 10 mg).

---

11. Contact Medical Control for the following OPTIONS:
    Adult
    A. Naloxone (Narcan) 0.4-2.0 mg IV, ET, IM.
    B. Thiamine 100 mg IV, IM.
    C. **IV if blood glucose < 80 mg dl, Dextrose 25 gm (50 ml of 50% solution).**

D. Glucagon 1 mg IM (if IVaccess is unavailable for administration of Dextrose).
E. Additional Diazepam (Valium) per Medical Control.

Pediatric

F. Naloxone (Narcan) 0.4-2.0 mg IV, IO, ET.
G. Dextrose 10% (dilute 1 ml of D50 in 4 cc IV fluid or use pre-mix) 5ml/kg IV, IO.*
H. Glucagon 0.5 mg IM (if IV, IO access is unavailable for administration of Dextrose.*)
I. Additional Diazepam (Valium) per Medical Control.

*If seizure is secondary to trauma without the possibility of hypoglycemia, **DO NOT** give dextrose or glucagon.

ACUTE STROKE

Acute stroke should be suspected if any of the following have appeared in the last few hours or days: weakness on one side of face, weakness in one arm or leg, abnormal speech (slurred, incoherent, absent).

See also Gold 3 (Adult Coma) if warranted.
See also gold 4 (Diabetic Emergencies) if warranted.

BASIC

1. Administer 0_2 as appropriate.
2. Request ALS if available.

INTERMEDIATE

3. Advanced Airway as needed. “See Blue 1”
4. Cardiac monitor.
5. IV en route.
6. Draw blood as IVestablished or do finger stick, to measure blood glucose using MEMS approved technique/device. **If blood glucose < 80 mg dl and patient is able to swallow, administer Glucose paste.**

CRITICAL CARE / PARAMEDIC

7. IVon scene.
8. **If blood glucose < 80 mg dl,**
   A. Administer Dextrose 25 gm (50 ml of 50% solution) IV, or
   B. Glucagon 1 mg IMif IV unavailable.

Contact Medical Control for the following OPTION:

9. Repeat bolus of Dextrose or Glucagon.

NOTE: En route, as time allows and without interfering with treatment, assess patient for potential thrombolytic therapy at hospital (see check-list on next page, or local equivalent if available). Advise ED of results.

STROKE CHECKLIST

For patients with neurologic deficit and possible stroke, the following information should be collected and reported as soon as practical to the receiving ED (no delay in the usual assessment and treatment of this condition should be caused by collection of this information).

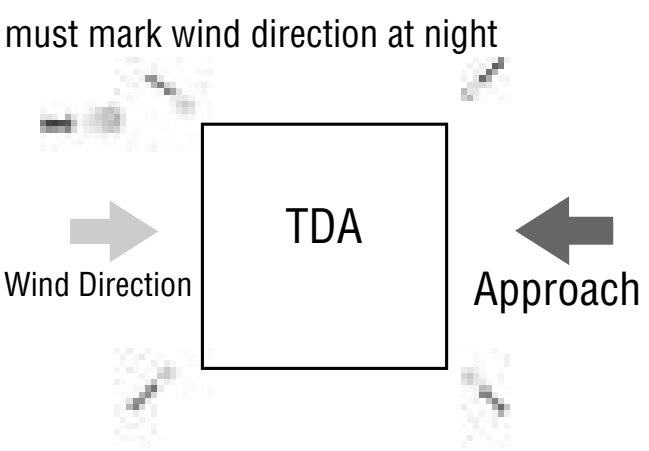
Attempt to obtain an exact time the patient was last known to be at baseline or deficit-free and awake.

1. Age > 45?	**YES**	NO
2. Symptom duration < 2 hours?	**YES**	NO
3. Blood glucose between 60 and 400 mg dl?	**YES**	NO
4. Based on exam, patient has only UNILATERAL weakness?	**YES**	NO
5. History of seizures?	YES	**NO**
6. At baseline, patient is wheelchair bound or bedridden?	YES	**NO**
7. Prior CVA or other serious CNS problems?	YES	**NO**
8. Surgery or major trauma in preceding 2 weeks?	YES	**NO**
9. Any bleeding problems?	YES	**NO**
10. Pregnant?	YES	**NO**

If the answers to all of these questions are those highlighted (1 – 4 yes 5 – 10 no), this patient may be a candidate for thrombolytic therapy and should be expedited to the ED. Inform the ED staff of these results as soon as practical.

You may copy and use this page as your checklist, or you may use a checklist recommended by your usual receiving hospital, which contains at least these questions.

Minimum Landing Zone Area
100' x 100'



Aircraft Arrival:

- Identify Scene and LZIC.
- Establish radio communications prior to landing.
- State Fire or State EMS are the default frequency.
- Advise pilot of terrain conditions, vertical obstructions, and wind direction.
- Secure LZ and identify personnel for tail rotor guards.
- Notify pilot if patient is packaged and ready for hot load.

Operating Around Helicopter:

- Approach aircraft w/crew escort only.
- Approach aircraft 90 degrees to door only.
- Avoid tail boom and rotor at all times.
- Eye and ear protection should be worn.
- Do not carry anything above shoulder height.
- **Secure all loose medical and personnel equipment.**

Terrain:

- Flat, firm, free of debris.
- Consider dust and snow.
- LZ should be down wind of accident scene.
- Free of vehicles and people.
- Any markers must be able to withstand 60mph winds.
- Approach path only from downslope of aircraft.

Vertical Obstructions

- Mark towers, antennas, poles, tall trees with vehicle.
- Check the wind. Helicopter must land and take off into the wind.
- Ideal = clear approach and departure angle 8:1 (200' to 25' vertical obstruction.

Wires:

- Electrical and utility wires are greatest single hazard to helicopters.
- Search LZ area for wires.
- Mark all wires, high tension lines, guide wires with vehicles.
- Notify pilot of all wires in proximity to landing zone.

Lighting:

- Never shine light directly at aircraft.
- All emergency lights on until aircraft overhead.
- Shut down vehicle strobes and white lights when aircraft on approach.
- Keep working lights to minimum.

Aircraft Departure

- Keep LZ clear for at least 5 minutes after helicopter departure.
- In case of emergency the helicopter may have to return to LZ.
- Keep communications open with pilot.

REMEMBER EVERYONE IS RESPONSIBLE FOR SAFETY

TRAUMA TRIAGE PROTOCOL
PATIENT WITH BLUNT OR PENETRATING TRAUMA

ASSESSMENT #1
(ASSESS PHYSIOLOGIC COMPROMISE)

Determine*
Glasgow Coma Scale
Respiratory Rate
Systolic Blood Pressure

↓

CALCULATE REVISED TRAUMA SCORE (RTS) **OR**
PEDIATRIC TRAUMA SCORE (PTS)
IS RTS < 11, OR PTS < 8

↓
NO
↓

YES
↓

ASSESSMENT #2
ASSESS ANATOMIC INJURY ↓

DO ANY ONE OF THE FOLLOWING CONDITTIONS EXIST?
a. Paralysis;
b. Amputation proximal to wrist or ankle;
c. Penetrating injury to chest, abdomen, head, or neck:
d. Two or more proximal long bone fractures;
e. Unstable pelvic fracture;
f. Open or depressed skull fracture;
g. Burn associated with trauma;

↓
NO
↓

YES
↓

Green 3

ASSESSMENT #3
ASSESS FOR PRESENCE OF HIGH ENERGY TRANSFER SIGNATURE
IS THERE AN ASSOCIATED FATALITY IN THE SAME VEHICLE?

NO

YES

TRANSPORT TO TRAUMA SYSTEM PARTICIPATING HOSPITAL

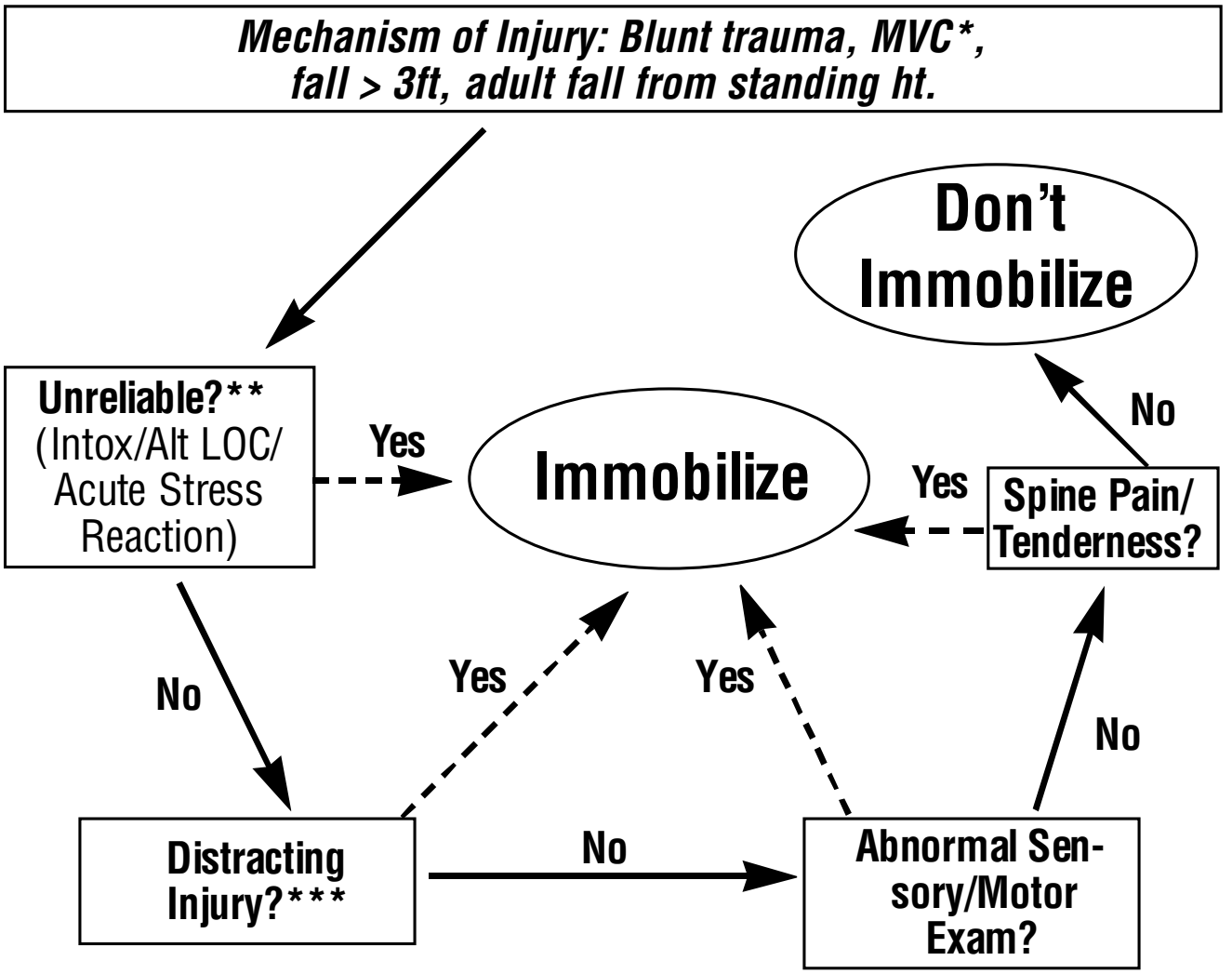
CONTACT O.L.M.C.

1. O.L.M.C. Confirms RTS/PTS.
2. O.L.M.C. Considers patient transport to Regional Trauma Center (RTC) using following guidelines.
   a. If transport time by ground or air to RTCis **less** than 30 minutes patient should go to RTCdirectly;
   b. If transport time to RTC is **greater** than 30 minutes, determine the **difference** in transport time between the RTC and the most accessible hospital:
      (i) if **difference** is less than 10 minutes, consider transport to RTC;
      (ii) if **difference** is greater than 10 minutes, consider transport to most accessible hospital;
3. If upon arrival in E.D.;
   a. Facility is not a RTC and;
   b. Patient continues to satisfy criteria of assessments One and Two, and;
   c. Patient can be stabilized for further transport, then receiving E.D. clinician should provide only life-saving procedures (avoiding unnecessary diagnostics) prior to transport to RTC unless he/she judges clinical situation to not warrant such transfer.

*If pre-hospital providers are unable to definitively manage the airway, main tain breathing or support circulation, begin transport to most accessible hospital and simultaneously request ALS intercept or tiered response.

In most circumstances, specific ANATOMIC indicators of trauma severity will be apparent. PHYSIOLOGIC indicators, on the other hand, often develop in a more time-related fashion. They might appear reasonably "normal" early in a major trauma situation, even if underlying injuries are severe or life threatening. The EMT should base their judgment on mechanism of injury, the potential for life or limb-threatening injury, and on the presumed relative physiologic reserve of the trauma victim. If such judgment indicates the significant potential for physiologic destabilization over a relatively short period of time, the EMT should contact O.L.M.C. with those facts, for potential diversion directly to a Trauma Center. Specific subsets of the trauma population to which this is most applicable include pediatric victims, elderly (> 65) victims, and pregnant women.

SPINE ASSESSMENT PROTOCOL



***MVC applies to crashes of all motorized vehicles: e.g., automobile, motorcycle, snowmobile, etc.**
****Clearance of the spine requires the patient to be calm, cooperative, sober, and alert.**
*****Distracting injury includes any injury that produces clinically apparent pain that might distract the patient from the pain of a spine injur y.**

This protocol may be used by MEMS licensees, at the Basic level or above, who have successfully completed the MEMS Spine Injury Management Course.

GLASGOW COMA SCALE (GCS)

The Glasgow Coma Scale or Score provides a practical means for monitoring changes in the level of consciousness. It is based upon eye opening, verbal, and motor responses. If each response is given a number (high for normal, low for impaired), the total responsiveness of the patient can be expressed by the sum of the numbers. Because the scale is physiologic, it is dynamic and subject to change as the patient's condition changes. Therefore, it must be repeated frequently. The lowest score is 3 and the highest is 15. When using the scale, it is best to DESCRIBE each response rather than just using numbers. A painful stimulus is rubbing the sternum with the knuckles or pinching an extremity.

Adult	Pediatric	Score
Eye Opening Response:	Same as Adult	
Open spontaneously on own.		4
Open to voice command.		3
Open to painful stimuli.		2
Eyes remain closed.		1
Best Motor Response:	Same as Adult	
Moves on command.		6
Pushes painful stimuli away.		5
Withdraws from pain stimuli.		4
Decorticate (flexion).		3
Decerebrate (extension).		2
No motor response to pain.		1

Best Verbal Response:

Oriented	Appropriate words or social smile, fixes and follows	5
Confused	Cries, but consolable	4
Inappropriate words	Persistently irritable	3
Incomprehensible sounds	Restless, agitated	2
No sounds	None	1
Total		3-15

REVISED TRAUMA SCALE

RESPIRATORY RATE	10 – 9 = 4 >30 = 3 6 – 9 = 2 1 – 5 = 1 NONE = 0	_____ Respiratory Points
SYSTOLIC BP	>90 = 4 76 – 89 = 3 50 – 75 = 2 1 – 49 = 1 NO PULSE = 0	+ _____ Systolic BP Points
CONVERT GLASGOW COMA SCORE TO TRAUMA POINTS	GCS: 13 – 15 = 4 9 – 12 = 3 6 – 8 = 2 4 – 5 = 1 38 = 0	+ _____ Trauma Points
		= REVISED TRAUMA SCORE

PEDIATRIC TRAUMA SCORE*

SCORE →	+2	+1	-1
COMPONENT ↓			
Weight	>44 LBS (>20 KG)	22 – 44 LBS (10 – 20 KG)	<22 LBS (<10 KG)
Airway	Normal	Maintainable Invasive	Unmaintainable
Blood Pressure	>90mm Hg	50 – 90 mm Hg	<50mm Hg
Level of Consciousness	Completely Aware	Obtunded or any LOC	Comatose
Open Wound	None	Minor	Major or Penetrating
Fractures	None	Closed Fracture	Open or Multiple Fractures

TENSION PNEUMOTHORAX

BASIC

1. 0_2 as appropriate.
2. Assist ventilations (PPV) if needed.
3. Request ALS if available.

INTERMEDIATE / CRITICAL CARE

4. IVen route.
5. If shock present, perform fluid challenge.
6. Cardiac monitor.

PARAMEDIC

7. Chest decompression.

CAUTION: Chest decompression will be performed on the involved side at the second or third intercostal space, mid-clavicular line, or fifth or sixth space on the anterior axillary line with a 2 inch, 14 gauge catheter. If catheter is to be left in, use one-way valve device.

AMPUTATIONS

BASIC

1. Control bleeding.
2. Treat for shock, if indicated, and 0_2 as appropriate.
3. Cover stump with moist, sterile dressing.
4. Rinse severed part briefly and gently with sterile saline to remove debris.
5. Wrap severed part in sterile gauze, moisten with sterile saline (do not soak), place in a water-tight container. Place container on ice (do not use dry ice). Do not put part directly on ice. If necessary, use ice packs to provide some level of cooling.
6. Request ALS if vital signs unstable.

INTERMEDIATE / CRITICAL CARE

7. IV en route.
8. If shock present, perform fluid challenge.
9. Cardiac monitor.

---

10. Contact Medical Control for OPTIONS for pain management (page Green 17).

HEAD TRAUMA

BASIC

1. Immobilize entire spine on long spinal immobilization device.
2. 0_2 as appropriate. Ventilate (PPV at 24/minute if level of consciousness is altered).
3. If not in shock, elevate head of long spinal immobilization device while maintaining full spinal immobilization.
4. Treat for shock if indicated.
5. Request ALS if available and patient has altered mental status or abnormal vital signs.

INTERMEDIATE / CRITICAL CARE / PARAMEDIC

6. IV en route.
7. If shock present, perform fluid challenge.
8. Cardiac monitor.
9. Advanced airway as needed. “See Blue 1”

HYPOVOLEMIC SHOCK

If history of illness or mechanism of injury consistent with sign/symptoms of shock (elevated pulse, elevated respiratory rate, cool/pale skin, altered LOC, anxiety, sweating or lowered BP) then transport as soon and as efficiently as possible.

If the cause of the shock is:
Anaphylaxis, see Gold 1
Cardiogenic, see Red 18
Tension Pneumothorax "See Green 11"

BASIC

1. Control bleeding.
2. 0_2 as appropriate.
3. Elevate legs.
4. If patient in third trimester of pregnancy:
   A. Place patient on left side if no head or spinal cord injury.
   B. In shock secondary to trauma, immobilize spine and elevate right side of long spinal immobilization device (manually displace uterus to left if elevation not possible).

INTERMEDIATE / CRITICAL CARE / PARAMEDIC

5. IV en route.
6. If shock present, perform fluid challenge.
7. Cardiac monitor.

If the cause of hypovolemic shock is felt to be secondary to acute unstable pelvic fracture, contact Medical Control for consideration of using MAST as a pelvic stabilization device.

BURNS

BASIC

1. Remove burned clothing and jewelry unless adherent to patient.
2. 0_2 as appropriate.
3. Give highest priority to airway problems and major trauma.
4. Manage shock if indicated.
5. If burn area is **less than 10%** BSA, cover with dressing soaked in in normal saline or other commercially prepared moist burn dressing.
6. If burn is **greater than 10%** BSA, cover with dry dressing sterile sheet, or commercially prepared dry dressing.
7. Request ALS, if available, if there is a possibility of respiratory compromise, shock, (burn greater than 10%BSA) or need for pain medications.

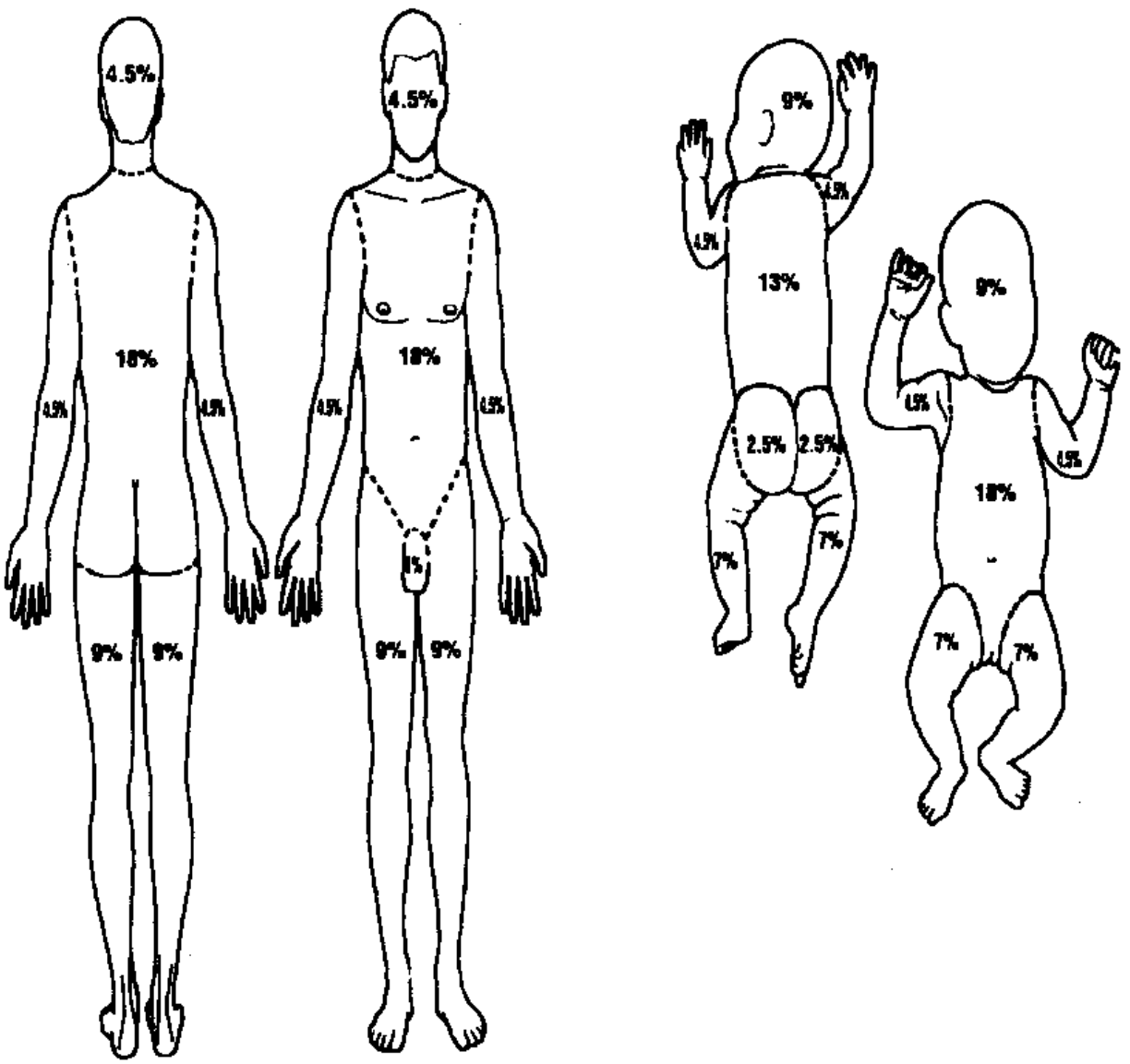
INTERMEDIATE

8. IV en route (avoid placing IV in burned skin if possible)
9. Cardiac Monitor (avoid placing leads on burned skin).
10. If shock present, perform fluid challenge.

Contact Medical Control for analgesic OPTIONS. “See Green 17”

RULE OF NINES

ESTIMATION OF BURNED BODY SURFACE (PERCENT)



REMEMBER: The patient's palm (hand minus fingers) is about 1% of the patients body surface area.

PAIN MANAGEMENT

BASIC/INTERMEDIATE

1. Reassurance.
2. Splinting, as needed, with inline stabilization. The need for pain and antiemetic medication may occur in patients whose condition requires ALS backup.

CRITICAL CARE / PARAMEDIC

3. Contact Medical Control for OPTIONS:
   A. Morphine Sulfate 2 – 10 mg IV. IM use is less preferable, use only if IV can't be established. Obtain dosage from Medical Control. Repeat every 5 minutes as needed up to a maximum of 15 mg as long as vital signs stable.
   B. Meperidine (Demerol) 25 mg IV. IM use is less preferable, use only if IV can't be established. Obtain dosage from Medical Control. Repeat every 5 minutes as needed up to a maximum of150 mg as long as vital signs stable. **Demerol must NOT be administered to patient on MAO Inhibitors (Nardil, Parnate, Eutron, Marplan, etc.).**
   C. Antiemetics as directed by Medical Control (see also Nausea/ Vomiting protocol – page Green 18).
   D. Self-administered fixed dose 50% nitrous oxide/oxygen mixture delivered by commercially – available device (such as Nitronox).

NAUSEA / VOMITING

Protocol for nausea/vomiting in a setting of pain or pain management in the conscious adult. Treatment includes correction of volume depletion.

BASIC

1. Position patient in position of comfort. The need for pain management and antiemetic medications may occur in patients whose condtion requires ALS back up.

INTERMEDIATE

2. If signs of dehydration or hypotension, establish large bore IV. Contact Medical Control for rate.

CRITICAL CARE / PARAMEDIC

3. When using narcotics for pain control or when pain alone seems to trigger vomiting, consider the use of antiemetics.

Contact Medical Control for OPTION:

A. Promethazine (Phenergan) 12.5 mg IV or IM.

May repeat with Medical Control permission.

TOXINS

Call Poison Control (1-800-222-1222) to have information on toxin faxed to ED prior to patient's arrival.

This protocol refers to toxins that are:

- ingested.
- inhaled.
- absorbed.
- injected (envenomation).

This protocol refers to toxins that cause:

- systemic effects.
- local effects.
- both systemic and local effects.

I. GENERAL ASSESSMENT

What Identify specific toxin and amount of exposure if possible. Bring pill bottles, vomitus samples, MSDS sheets, etc.

When Identify time of exposure if possible.

Why Identify reason for exposure if possible.

II. GENERAL TREATMENT

BASIC

1. Scene safety: protect rescuers and patients from immediate danger and contamination. Toxic exposures might require special precaution, including HAZMAT precautions, before patient treatment begins.
2. 0_2 as appropriate.
3. Clear airway as necessary with suction and position.
4. Ventilate as necessary.
5. Consider local measures for treatment.

INTERMEDIATE /CRITICAL CARE / PARAMEDIC

6. Advanced Airway as necessary. “See Blue 1”
7. If patient hypotensive – IVen route – perform fluid challenge.

III. SPECIFIC TREATMENTS TO REMOVE AND DILUTE TOXINS
Initiate measures to remove and dilute toxin.

For Ingested Toxins:

BASIC

1. 0_2 as appropriate.
2. Clear airway as necessary with suction and position.
3. Ventilate as necessary.
4. Consider local measures for treatment.

INTERMEDIATE / CRITICAL CARE / PARAMEDIC

5. Advanced Airway as necessary. “See Blue 1”
6. If patient hypotensive – IV en route – perform fluid challenge.

Contact Medical Control for OPTION:

1. Activated charcoal without sorbital 1 gm/kg PO.
2. Contraindications to charcoal include:
   - caustic (ingestion of).
   - hydrocarbons.
   - seizures.
   - patient is unable to swallow/protect airway.

For Inhaled Toxins:

BASIC / INTERMEDIATE/CRITICAL CARE/PARAMEDIC

1. Remove the patient from exposure site.
2. Spontaneous or assisted ventilation with clean air.
3. Ventilate with 100% oxygen if possible.

For Absorbed Toxins:

BASIC / INTERMEDIATE

1. Flush skin vigorously and continuously with water.
2. Flush eyes continuously with water, saline, or LR.

CRITICAL CARE / PARAMEDIC

3. Consider pain medication. “See page Green 17”

For Injected Toxins:

There is no effective method of removing/diluting toxins that have already been injected through the skin. Avoid further exposure to injected toxins.

IV. ANTIDOTES FOR SPECIFIC TOXINS

For Cyclic Antidepressants

Some examples of cyclic antidepressants include: Amitriptyline, Desipramine, Doxepin, Imipramine, Nortriptyline. Call Poison Control and Medical Control as soon as possible with names of ingested drugs.

BASIC / INTERMEDIATE

1. Hyperventilate.
   In patients with known cyclic overdose, with low BP or seizures or ventricular dysrhythmias or wide QRS complex:

CRITICAL CARE / PARAMEDIC

2. Administer Sodium Bicarbonate 1 mEq/kg IV.

For Narcotics:

BASIC

1. Administer 0_2 as appropriate.
2. Request ALS if available.

INTERMEDIATE

3. IV.
4. Advanced Airway as needed. “See Blue 1”
5. Cardiac Monitor.

CRITICAL CARE / PARAMEDIC

6. Naloxone (Narcan) Titrated IV, ET at 0.2 mg increments (to maximum 2 mg), to restore normal respiratory rate (be aware that patient may become combative and may need restraint.)

---

1. Contact Medical Control for OPTIONS:
   a. Repeat dose, as necessary, every 5 minutes.
   b. Administer other selected antidotes.

For Organophosphate/carbamate:

(WARNING; SKIN CONTACT WITH THIS TOXIN CAN BE FATAL TO RESCUER)

In unstable patients with known organophosphate/carbamate poisoning:

BASIC

1. 0_2 as appropriate.
2. Request ALS if available.

INTERMEDIATE

3. IV.
4. Advanced Airway as appropriate.
5. Cardiac Monitor.

CRITICAL CARE / PARAMEDIC

6. Administer Atropine 2 mg IV.

---

1. Contact Medical Control for OPTIONS:
   A. Repeat dose, as necessary, every 5 minutes.
   B. Administer other selected antidotes.

MILD HYPOTHERMIA

ASSESSMENT: Reduced core temperature (90º to 95º F)

Shell ➔ core shunt:

- Cool, pale, cyanotic skin.
- Cold diuresis.
- Reduced shell function causing clumsiness with fine motor tasks.
- Cardiac function is stable.
- Shivering.
- Abnormal consciousness.
  (mild changes = abnormal mental status)

TREATMENT:

BASIC

Since mild hypothermia causes no significant cardiac instability, any method of field rewarming is generally safe:

1. Field Rewarming:
   A. Reduce the cold challenge by protecting the patient from the cold environment.
   B. Reverse the cold challenge by adding external heat.
   C. Increase intrinsic heat production by exercise (calories stores must be adequate for effective exercise).
   D. Increase heat retention by adding insulation.
2. Treat associated conditions.
3. Treat cardiac problems and cardiac arrest as per normothermic protocols.

SEVERE HYPOTHERMIA

ASSESSMENT: Reduced core temperature (below 90º F)
Shell ➔ core shunt:

- cold, frozen, pale, cyanotic skin.
- cold diuresis.
- cold, toxic wastes are pooled in shell circulation.
- cold, irritable heart that easily fibrillates in response to a variety of stimuli.
- Abnormal consciousness (severe = AVPUchanges).

TREATMENT:

Patients are in a "metabolic icebox" of reduced physiologic function, which allows some temporary protection from the effects of cardio-respiratory arrest. **The severely cold heart is sensitive to a variety of stimuli, and fatal arrhythmias can be caused by incorrect or carelessly applied treatment efforts.**

BASIC:

1. Field rewarming and resuscitation is difficult, dangerous, and rarely effective. Transport to controlled rewarming as soon as possible. The "metabolic icebox" provides some protection, but time is uncertain and limited. Contact Medical Control for option to reroute to advanced facility.
2. Handle gently to prevent ventricular fibrillation. Keep clothing in place unless it can be cut away without jostling the patient.
3. Keep the patient flat to avoid vascular shock from postural changes.
4. Reduce the cold challenge by protecting the patient from the cold environment.

5. Ventilate as necessary with heated and humidified air or oxygen.
6. Add insulation to avoid further heat loss.
7. Avoid exercise and extreme external rewarming to prevent sudden shell reperfusion. Heat packs are recommended because they help prevent further heat loss to a cold environment; they generally do not produce extreme shell rewarming. When using heat packs, apply to axilla, groin, and head, and protect cold skin from direct contact with hot packs.
8. Treat associated conditions.
9. Treat cardiac problems and cardiac arrest as per hypothermic protocols.

INTERMEDIATE / CRITICAL CARE / PARAMEDIC

10. Advanced Airway as needed. “See Blue 1”
11. IV.
12. Perform fluid challenge as necessary.

CARDIORESPIRATORY ARREST – SEVERE HYPOTHERMIA

Severe hypothermia and the "metabolic icebox" provide some temporary protection from the effects of cardio respiratory arrest, and prolong the possibility for normal recovery with or without BLS/ALS measures:

BLS/ALS procedures do not significantly improve survival if the patient has been submerged for more than one (1) hour .

CONTACT MEDICAL CONTROL AS SOON AS POSSIBLE

ASSESSMENT

Since a severely hypothermic heart is irritable and V-Fib can be induced by physical stimuli, determine that functional cardiac activity is definitely absent before initiating chest compression. Functional cardiac activity is considered to be absent only if:

1. V-Fib or asystole is confirmed by:
   A. monitor
      or
   B. the patient loses a pulse that was previously palpable by EMS personnel during the rescue;

   and

2. No clinical signs of life are present. These include:
   A. any spontaneous ventilation.
   B. any response to positive pressure ventilation.
   C. any spontaneous movement or sound.
   D. any organized rhythm on monitor.
   E. audible heart sounds on ausculation.

TREATMENT:

BLS/ALS procedures should be **discontinued or deferred** to the hospital under any of the following conditions:

- chest is frozen/non-compliant.
- these procedures cause significant delays to controlled rewarming.

NOTE: BLS/ALS procedures can be effective in severe hypothermia even if used intermittently as evacuation conditions permit.

BASIC

1. Support ventilation with heated, humidified air or oxygen.
2. Chest compressions should never be done if any clinical signs of life are present, even if a pulse is not palpable; and should be done only if functional cardiac activity is definitely absent (V-Fib / asystole on monitor or patient loses pulse).
3. Defibrillation should be withheld unless core temperature is 85° F or greater.

INTERMEDIATE

4. Advanced Airway as per normothermic patients.

CRITICAL CARE / PARAMEDIC

5. See cardiac protocols for particular arrhythmia, however antiarrhythmic medications should be withheld unless the core temperature is 85° F or greater.

HYPERTHERMIA

HEAT EXHAUSTION – Volume depletion due to sweat loss.

ASSESSMENT:
If core temperature is obtained, it will be variable, but always below 105º F. Clinical pattern is essentially that of compensated volume shock:

- Weakness and vomiting.
- Skin is variable. Core ➔ shell shunt to increase heat loss competes with shell ➔ core shunt to protect volume. Skin is usually pale and moist with variable skin temperature.
- Sweating.
- Normal consciousness and CNS function.

TREATMENT: Goal is to reduce sweating and to restore volume.

BASIC

1. Protect the patient from heat challenge. Stop exercise and put patient at rest in a cool, shady place.
2. Oral fluids can be effective if the patient is not vomiting. Use dilute (less than 5% sugar) fluids given in small sips.

INTERMEDIATE / CRITICAL CARE / PARAMEDIC

1. IV. Perform fluid challenge.

HEAT STROKE – A true medical emergency that requires radical field treatment. Usually, but not always, associated with heat exhaustion.

ASSESSMENT:
If core temperature is obtained it is 105º F or greater.
Abnormal consciousness and/or CNS function; seizures are common.

Any acute change in consciousness/ CNS function in the context of a significant heat challenge should be managed as heat stroke without delay .
Skin and sweating are variable, depending on volume status. Note that red, dry skin is not a dependable sign of heat stroke.

TREATMENT:
Immediate radical cooling is the urgent priority, followed by volume replacement.

BASIC

1. Cool the patient immediately by any means practical, such as:
    - Immerse the patient to the neck in cold water.
    - Moisten the skin and fan vigorously. This method is effective only at low ambient humidity.
    - Ice packs, wet patient, may use cool wet sheets, and air con-
    - ditioning en route.
2. Discontinue radical cooling if:
    - Shivering begins.
    - Core temperature falls to 102º F.
    - Consciousness and CNS function return to normal.

INTERMEDIATE / CRITICAL CARE / PARAMEDIC

3. IV. Perform fluid challenge.

PEDIATRIC COMA
(Decreased Level of Consciousness)

BASIC

1. 0_2 as appropriate. PPV if needed.
2. Spinal immobilization if indicated.
3. Request ALS, if available.

INTERMEDIATE

4. Cardiac monitor en route.
5. IV, IO, TKO en route (18 or 20 gauge catheter is acceptable for IV).
6. Draw blood as IV established, or do finger stick, to measure blood glucose, using MEMS-approved technique/device.

CRITICAL CARE / PARAMEDIC

7. Contact Medical Control for following OPTIONS:
   A. Naloxone (Narcan) 0.4-2.0 mg IV, ET, IO.
      1. **If blood glucose < 80 mg d**l, Dextrose 10% (dilute 1 ml of D_{50} in 4 ml IV fluid or use pre-mix) 5 ml/kg IV, 10 up to 40 kg (above that weight, use adult dose of D_{50}).
      2. Glucagon 0.5 mg IM (if IV, IO access is unavailable for administration of Dextrose.)*

- If coma is secondary to trauma, without the possibility of hypoglycemia, **DO NOT** administer dextrose or glucagon.

PEDIATRIC SEIZURES

BASIC

1. Open, protect and maintain airway.
2. Spinal immobilization if indicated.
3. 0_2 as appropriate.
4. Protect the patient from self-injury.
5. Request ALS if available and seizure continues or unstable vital signs

INTERMEDIATE

6. Cardiac monitor.
7. IV, IO, TKO.
8. Draw blood as IV established, or do finger stick, to measure blood glucose, using MEMS-approved technique/device.
9. Advanced Airway as needed. “See Blue 1”

CRITICAL CARE / PARAMEDIC

10. Administer:
    A. Diazepam (Valium) 0.2 mg/kg IV, IO. May be repeated. Give at rate of 5 mg/minute (maximum of 10 mg).
    B. Diazepam (Valium) 0.5 mg/kg rectally via well-lubricated, needleless 1 ml plastic syringe (maximum of 10 mg).

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11. Contact Medical Control for the following OPTIONS:
    A. Naloxone (Narcan) 0.4-2.0 mg IV, IO(or 4.0 mg ET followed by a saline flush) for narcotic intoxication.

B. Dextrose 10% (dilute 1 ml of D_{50} in 4 cc IV fluid or use pre-mix) 5 ml/kg IV, IO.*
C. Glucagon 0.5 mg IM(if IV, IO access is unavailable for administration of Dextrose.)*
D. Additional Diazepam (Valium) per Medical Control orders.

- If seizure is secondary to trauma, without the possibility of hypoglycemia, **DO NOT** administer dextrose or glucagon.

PEDIATRIC RESPIRATORY DISTRESS

(Epiglottitis, Croup, Bronchiolitis, Asthma)
(For Inspiratory Stridor – see protocol for Pediatric Respiratory Distress with Inspiratory Stridor, Pink 6)

BASIC

1. If adequate ventilation, let child assume position of comfort.
2. O_2 – optimal treatment for patients with stridor is cool, moist air at the highest possible oxygen concentration (allow parent to assist in administration).
3. Request ALS, if available.
4. If inadequate ventilation:
   A. If foreign body suspected, use the AHA Foreign Body Airway Obstruction protocol.
   B. IF CHILD HAS INSPIRATORY STRIDOR, ESPECIALLY IF LEANING FORWARD OR IN THE SNIFFING POSITION, THEN:
      I. Put child in position of comfort.
      II. DO **NOT** ATTEMPT ANY PROCEDURE/MANEUVER (INCLUDING EXAMINATION OF OROPHARYNX) WHICH MAY INCREASE CHILD'S ANXIETY AND THEREBY RAISE CHANCES OF LARYNGOSPASM UNLESS ABSOLUTELY NECESSARY TO PRESERVE AIRWAY.
5. Open airway if needed, ventilate with bag-valve-mask if inadequate ventilation. In epiglottitis, this may require forceful ventilation, including closure of pop-off valve onBVM, and use of Sellick's maneuver to prevent gastric distention.
6. Constantly monitor airway for patency in any unconscious child.

EMT-Basic and Intermediate level providers: contact Medical Control for the following OPTIONS:

7. If the patient's bronchodilator inhaler is Albuterol, (Proventil or Ventolin) – assist patient in self-administering 8 puffs.
8. If patient's inhaler medication is not one listed in #7, above, contact Medical Control for permission to assist patient with self-administered bronchodilator inhaler (using spacer if available*). Inform Medical Control of the name of the inhaler. Medical Control will prescribe number of puffs.

*If spacer unavailable and Critical Care/Paramedic present, they should use nebulizer instead.

CRITICAL CARE / PARAMEDIC

1. If expiratory wheezing with spontaneous ventilation, use following OPTIONS:
   A. Second dose of patient's inhaler, dose as begun in #7 (above).

   OR

   B. Albuterol – 2.5 mg by nebulization (use either 3 ml premix or 0.5 ml of 0.5% solution mixed in 3 ml of normal saline). May repeat 1 time.

   OR

   Short acting bronchodilator inhaler, 2-10 puffs with spacer.

2. Contact Medical Control for Epinephrine (1:1,000) 0.01 mg/kg SC (this is 0.01 ml/kg) to a maximum of 0.3 mg/dose.

Pediatric Respiratory Distress with Inspiratory Stridor (Laryngotracheitis/Croup)

Inspiratory stridor may be due to many causes in the pediatric population, including croup, foreign body aspiration, or epiglottitis.

Stridor refers to upper airway obstruction as in Laryngotracheitis/Croup, and is often accompanied by hoarseness and/or a barking cough (seal-like cough).

As stridor worsens in severity, the following may also be observed: tachypnea, retractions, accessory muscle use, nasal flaring, fatigue from respiratory effort, and cyanosis.

BASIC

1. Humidified 0_2 as appropriate with upright posture.
2. If needed, assist ventilations with PPV using 100% 0_2.
3. Request ALS if available.

CRITICAL CARE / PARAMEDIC

4. Contact Medical Control for the following OPTION:
   A. Inhalation of nebulized solution of 1cc 1:1000 epinephrine mixed with 2cc normal saline solution.

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* - Nebulized epinephrine may be contraindicated in children with a history of congenital heart disease.

PEDIATRIC RESPIRATORY ARREST

(with and without obstruction)

"Prehospital providers should consider patient age, diagnosis, transport time, provider experience, and effectiveness of ongoing bag-mask ventilation in considering whether to continue with bag-mask ventilation versus proceeding to endotracheal intubation. Bag-mask ventilation has been shown to be equivalent to endotracheal ventilation in pediatric patients in most situations with short transport times"

BASIS

1. Follow AHA Respiratory Arrest procedure utilizing bag valve mask and 100% O_2 for ventilation. Use the AHA foreign body obstructed airway procedure as necessary.
2. Request ALS if available.

INTERMEDIATE / CRITICAL CARE

3. Secure airway, including Advanced Airway as needed. "See Blue 1".
4. Magill forceps if indicated.
5. Cardiac monitor.
6. IV/IO en route.
7. Pulse oximetry if available.

PARAMEDIC

8. Needle cricothyrotomy if indicated.

PEDIATRIC SHOCK

Pediatric Shock is well established before the appearance of classic signs and symptoms. The earliest sign is delayed capillary refill. This may also be accompanied by altered level of consciousness, rising pulse and increasing respiratory rate. By the time blood pressure drops, death is near.

BASIS

1. Airway management.
2. 0_2 as appropriate.
3. Hemorrhage control.
4. Keep child warm and dry.
5. Request ALS if possible.

NOTE: Do NOT use MAST.

INTERMEDIATE / CRITICAL CARE / PARAMEDIC

6. Cardiac monitor.
7. Pulse oximetry if available.
8. IV/IO en route.
9. 20 ml/kg bolus of fluid – IV or IO.
10. Advanced Airway as needed. “See Blue 1”

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11. Reassess. If no improvement in capillary refill, level of consciousness, pulse or respiratory rate, repeat 20 ml/kg bolus and notify Medical Control.

PEDIATRIC CARDIAC ARREST

(non-breathing, pulseless patient)

Pediatric cardiac dysfunction is more likely to respond to effective oxygenation and ventilation, then fluid administration – and then medications may be needed. Defibrillation alone is rarely successful.

BASIS

1. 100% 0_2 and ventilate with bag valve mask.
2. CPR.
3. Request ALS if available.

INTERMEDIATE / CRITICAL CARE / PARAMEDIC

4. Advanced Airway as needed. “See Blue 1” (consider possibility of foreign body obstruction).
5. IV(Intraosseous if IVnot established within 90 seconds).
6. Cardiac monitor and treat dysrhythmias according to protocol using pediatric dosages listed below.
7. For traumatic cardiac arrest give IV/IO bolus of 20 ml/kg LR/NS. **May be repeated.**

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8. Contact Medical Control 

PEDIATRIC CARDIAC ARREST DOSAGES

"Prehospital providers should consider patient age, diagnosis, transport time, provider experience, and effectiveness of ongoing bag-mask ventilation in considering whether to continue with bag-mask ventilation versus proceeding to endotracheal intubation. Bag-mask ventilation has been shown to be equivalent to endotracheal ventilation in pediatric patients in most situations with short transport times"

Atropine 0.02 mg/kg	**IV/IO:** Minimum dose: 0.1 mg. Maximum single dose: 0.5 mg (child).
Epinephrine* (bradycardia)	**IV/IO:** 0.01 mg/kg (1: 10,000, 0.1 ml/kg **ET**: 0.1 mg/kg (1: 1,000, 0.1 ml/kg).
Epinephrine*(asystole/ pulseless arrest)	<u>FIRST DOSE:</u> **IV/IO:** 0.01 mg/kg (1:10,000, 0.1 ml/kg). **ET:** 0.1 mg/kg (1: 1,000, 0.1 ml/kg). IV/IO doses as high as 0.2 mg/kg of 1:1,000 may be effective. <u>SUBSEQUENT DOSES:</u> **IV/IO/ET:** 0.1 mg/kg (1:1,000, 0.1 ml/kg). Repeat every 3-5 minutes. IV/IO doses as High as 0.2 mg/kg of 1:1,000 may be effective.
Lidocaine	**IV/IO:** 1 mg/kg.

*When administered via endotracheal tube, flush with 3-5 ml of LR/NS and follow with several positive pressure ventilations.

Cardioversion: 0.5 J/kg (initial); 1.0 J/kg (subsequent).
Defibrillation: 2.0 J/kg (initial); 4.0 J/kg (subsequent).

CHILDBIRTH

BASIC

1. 0_2 as appropriate.
2. Encourage mother to NOT bear down.
3. If hypotensive, roll patient onto left hip.
4. If the presenting part is the cord, apply pressure to the baby with a sterile, gloved hand to keep pressure off the cord. Raise mother's hips on two pillows. Keep cord warm. Do not clamp or cut cord.
5. Request ALS if available.
6. If baby's head is delivering:
   A. Do not hurry or slow delivery.
   B. Suction infant with bulb syringe (mouth then nose) as soon as head is delivered. Check to see if cord is wrapped around neck:
   if so, attempt to unwrap the cord. Failing this, clamp and cut immediately and deliver child.
   C. Double clamp the cord at least 4 inches from baby and cut between clamps.
   D. Dry baby, examine and keep warm (may place next to mother's skin.). As soon as possible, enable child to nurse at mother's breast.
   E. Assess APGARSCORE at 1 and 5 minutes (page Pink 12).
   F. Do not externally massage the uterus en route until placenta has delivered.
   G. Do not forceably remove placenta.
   H. If placenta is delivered, wrap and package with cord intact.

APGAR SCORE

Assess the baby at 1 minute and again at 5 minutes.

DO NOT DELAY RESUSCITATION to obtain APGAR Score.

A score of less than 7 suggests need for resuscitation with suction, ventilation, and ALS back up.

	SCORE		
	0	1	2
A-Appearance	Blue or pale	Body pink Hands blue	Pink
P-Pulse	Absent	<100	>100
G-Grimace*	None	Grimace	Cough
A-Activity**	Flaccid	Some	Good
R-Respiration	Absent	Weak	Good

*Tested by a suction catheter or bulb syringe tip gently placed in the nose or mouth.

**Amount of spontaneous flexion of extremities.

NEONATAL RESUSCITATION

BASIC / INTERMEDIATE

1. Suction airway, as soon as head presents (mouth, oropharynx, then nose).
2. Dry infant to provide stimulation and prevent chilling.
3. **Keep infant warm.**
4. Check respiratory rate.
   A. >20 or crying: no action.
   B. <20: tactile stimulation. If not immediately effective, provide assisted ventilations with 100% oxygen. If unsuccessful, close pop-off valve.
5. Check heart rate:
   A. >100: no action.
   B. 60-100: ventilate with 100% oxygen.
   C. >60: begin chest compressions and ventilate with high concentration oxygen.
6. Check color
   A. Normal: no resuscitation needed.
   B. Central cyanosis: provide 100% oxygen and assist ventilations as needed.
7. Request ALS if available.

CRITICAL CARE / PARAMEDIC

Oral endotracheal intubation if BVM ventilation is ineffective or tracheal suctioning is required (i.e. thick meconium may need to be suctioned using an ET tube as a catheter).

9. Contact Medical Control for the following OPTIONS:
   A. Epinephrine 0.01 mg/kg IV/ET/IO (1: 10,000) and repeat every 5 minutes if heart rate is less than 80 despite adequate ventilation and A trial of chest compressions for 1 minute.
   B. IV/IO; fluid challenge @ 10 ml/kg bolus.
   C. Narcan 0.4 mg IV/IO.
   D. Consider hypoglycemia, give dextrose 10% (dilute 1 ml D_{50} in 4 ml LR, or premixed) 5 ml/kg IV/IO bolus.

NOTE: Remember to obtain APGAR score on baby (page Pink 12)

NORMAL PEDIATRIC VITAL SIGNS

	Systolic BP (mm Hg)	Pulse (beats/min)	Respirations (breaths/min)
Newborns	50-90	100-180	30-60
Infants	87-105	100-160	30-60
Toddlers	95-105	80-110	24-40
Preschoolers	96-108	70-110	22-34
School-agers	97-112	65-110	18-30
Adolescents	112-128	60-90	12-16

NOTE: Estimated weight in kilograms:[2 x (age in years)] + 8

DO NOT RESUSCITATE
(DNR) GUIDELINES

I. **When to Start Resuscitation:**
As soon as the absence of pulse and respiration are established.

II. **When Notto Start Resuscitation (Assuming normothermic body):**

A. Any patient displaying obvious and accepted signs of irreversible death such as rigor mortis, dependent lividity, decapitation, decomposition, incineration or other obvious lethal injury when cardiac monitor-if available-shows asystole or agonal rhythm.

B. Major blunt trauma victims who have no respiration and no pulse, no sign of life at the time of Maine EMS licensed crew member arrival, and whose cardiac monitor - if available - shows asystole or an agonal rhythm.

C. When an original, signed physician's DO Not Resuscitate (DNR) order is presented in one of three forms:

III. EMS DNR orders from other state EMS/DNR programs:
If the order or device (bracelet, necklace, card) appear to be in effect, and understandable to the crew, follow the orders specific instructions. If there are no specific instructions beyond "DNR", follow Maine EMS Comfort Care/DNRGuidelines.

IV. **Non-EMS DNR Orders:**
A written, signed, original DNR order executed by a patient's personal physician should be honored if it is understandable to the crew and if it is dated within 1 year. Follow the order as written. If it is nonspecific as to care to provide or withhold, follow the MEMS Comfort Care/DNR guidelines.

V. **Maine EMS Comfort Care / DNR Program:**
A Maine EMS Comfort Care/DNR form does not have an expiration date. Once activated, it remains in effect until it is cancelled by the patient or someone acting on their behalf as described and authorized on the Comfort Care/DNR orange form.

A. **When Treating a Patient with a Maine EMS Comfort Care/DNR Order the responding EMS provider should:**

1. Perform routine patient assessment and resuscitation or intervention until EMSComfort Care/DNR Order is confirmed:
   a. Determine that EMSComfort Care/DNRBracelet or Necklance is intact and not defaced, or the original EMS Comfort Care/DNR Order or wallet card is present. Location of the Bracelet should either be wrist, ankle, or necklace.
   b. If no Bracelet or Necklace is found, look for ORIGINAL orange EMS Comfort Care/DNR Order Form or wallet card. If the EMS Comfort Care/DNRBracelet or Necklace is not present, and if no valid EMS Comfort Care/DNR Order is found, consider the EMSComfort Care/DNRto be invalid.

B. c. Verify the identity of the patient through family or friends present, or with photo ID such as a driver's license. A good faith effort only is required.

Follow these EMS Comfort Care/DNR procedures in all cases:

1. **These comforting interventions are encouraged:**
   a. Open airway manually (NO intubation, No BVMunless invited by conscious patient);
   b. Suction and provide oxygen;
   c. Make patient comfortable (position, etc.);
   d. Control bleeding;
   e. Pain and other medications of comfort to a conscious patient only (ALS per Medical Control);
   f. Be supportive of patient and family;
   g. Contact patient's physician or On-Line Medical Control if questions or problems.

2. **Resuscitative measures to be avoided** (these are to be withheld, or withdrawn if resuscitation has begun prior to confirmation of EMSComfort Care/DNROrder status).
   a. CPR:
   b. Intubation (ET Tube, or other advanced airway management); surgical procedures;
   c. Defibrillation;
   d. Cardiac resuscitation medications;
   e. Artificial ventilation by any means;
   f. Related procedures per Medical Control.
3. **Revocation – Who may revoke an EMS Comfort Care/DNR Order:**
   a. The patient (by destroying EMSComfort Care/DNROrder Form and Bracelet, or verbally withdrawing order);
   b. The patient's physician who signed the order;
   c. The Authorized Decision-Maker for the patient who signed the order.
4. **Documentation:**
   a. Use the Maine EMSpatient/run form.
   b. Describe assessment of patient's status;
   c. Document which identification (Form or Bracelet) was used to confirm EMS Comfort Care/DNRstatus and indicate that it was intact and not revoked.
   d. Indicate the EMS Comfort Care/DNROrder number, as well as the patient's physician's name, on patient/run form.
   e. If the patient has expired on arrival, comfort family and follow agency's procedure for death at home. A Maine EMS patient/run form still needs to be completed.
   f. If transporting the patient, keep original EMS Comfort Care/DNR Order Form with the patient.

5. **When to Stop Resuscitation:**
   a. When the patient regains pulse and respiration.
   b. When equally, or more highly, trained rescuers or health care personnel take over.
   c. When the rescuers are physically exhausted.
   d. When a patient's personal physician or Medical Control orders resuscitation to stop.

Contact Medical control for OPTIONS to stop:

   e. **When the patient in asystole is unresponsive to life support efforts for greater than 10 minutes.**
   f. When the patient is unresponsive to advanced cardiac life support protocols performed by Critical Care EMTs or Paramedics for 20 minutes.
   g. In the absence of advanced cardiac life support, when the same Maine EMS licensed crew member has documented the absence of all vital signs for 20 minutes, in spite of BLS, except in the case of hypothermia.

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6. **Management of Bodies**
   If resuscitation efforts are discontinued, arrangements should be made with Medical Control with regards to disposition of the body. Contact your local ED with regard to tissue donation options and procedures in advance.

DEATH SITUATION GUIDELINES FOR EMERGENCY MEDICAL RESPONDERS

PURPOSE: Development of DEATH SITUATION PROCEDURES by Emergency Medical Services

PREPARED JOINTLY BY: Attorney General, Office of Chief Medical Examiner, Maine State Police.

GENERAL AIM: Preservation of scene, including body as found, for investigative purposes within practical limits consistent with the role and responsibilities of emergency medical care givers.

Death Situation Guidelines

I. **Preserve life:** While forensic guidelines emphasize that the scene should not be disturbed, the first and most important course of action is to follow all usual procedures to ensure the preservation of life.

II. **Once Death is confirmed** : ***If the decedent is clearly dead,*** *the body should not be moved or disturbed* ***unless there is a danger that the body may be lost or further damaged.***

A. Maine statutes do not require a pronouncement of death.

B. The scene should be secured and left undisturbed.

1. If the police are present, they should take charge in order to determine whether the case falls under the jurisdiction of the Office of Chief Medical Examiner (OCME) or may be certified by the private attending physician.
2. If there is no police officer present, EMS should call the local police or call the OCME directly to report the case, so that a determination may be made as to the need for further investigation into the cause and manner of death. OCMEemergency line to report deaths: 1-800-870-8744

C. **Tubes and Medical Devices** should be left in place. Certain reusable equipment may be removed to resupply the ambulance, however written documentation of any such action must be given to investigators.

D. **Any clothing or property should be left undisturbed.**

III. **What is an ME case?:**

A. Any suspected HOMICIDE
B. Any suspected SUICIDE
C. Any death involving any ACCIDENT or INJURY
D. Any death of a CHILD
E. Any death in CUSTODY
F. Deaths caused by SUSPECTED GROSS NEGLIGENCE during a Medical Procedure
G. SUDDEN DEATH from an UNKNOWN cause or any death where there is no private attending physician
H. UNIDENTIFIED persons
I. OCCUPATIONAL Deaths (Work related)
J. Unnatural Deaths in a Mental, Residential Care or DHS Facility
K. Any death that might ENDANGER or THREATEN the Public Health

IV. **Deaths in Children:**

A. All deaths in children under the age of three automatically become medical examiner cases unless the death is expected based on previously diagnosed natural disease.
B. Determination of the cause of death in infants and children is very difficult. While the OCME understands the concerns of the parents, the child **must** be left undisturbed until investigating police officers have finished the initial investigation. SIDS is not an acceptable reason to transport a deceased infant or allow the infant to be moved prior to investigation.

V. **Reports and follow-up on Medical Examiner cases:**

A. If families have questions, they may be referred to the OCME. Families should call the office using the 24 hour business line at 624-7180.
B. Copies of EMS run sheets should be given to police investigators and/or the OCME.
C. If any EMT wishes follow-up information on any specific case, or if there is a question of infectious exposures, call the OCME on the business line, 624-7180.

MASS CASUALTY / DISASTERS

GENERAL RESPONSIBILITY FOR DECEASED PERSONS: The Office of Chief Medical Examiner is responsible for deceased victims of mass disasters including identification and removal from the scene. The Office of Chief Medical Examiner (1-800-870-8744, restricted emergency call number) should be informed immediately of any multiple fatality situations.

1. **BODIES SHOULD BE LEFT IN PLACE AT SCENE** except when they must be moved to preserve them from destruction or when they block access. The resting place of the victim may be critical for identification of the body and/or reconstruction of the incident. They can be tagged as fatalities to prevent other medical personnel from repeating examination.
2. **IF DEATH OCCURS EN ROUTE TO THE HOSPITAL**, the body need not be replaced at the scene but can be brought to the hospital or other suitable storage place as determined by distances and needs of other patients in the ambulance. If the body is left anywhere other than the hospital or designated temporary morgue, the body should be tagged and the Office of Chief Medical Examiner should be advised.
3. **THE SITE A VICTIM IS REMOVED FROM SHOULD BE NOTED** on a tag along with the name and agency of the person who removed it whenever removal is needed and in cases of death after removal. Such information may be critical for identification of the body and/or reconstruction of the incident.
4. **IF AN IDENTIFICATION IS MADE**, while the EMT has the victim dead or alive, a tag with at least the name and date of birth of the deceased along with the identifier's name, relationship, address and where he/she can be located should be put on the body.
5. **PERSONAL PROPERTY SHOULD BE LEFT WITH THE BODY**, including clothing removed from a patient if the victim dies. Nothing should be removed from those already deceased.

MASS CASUALTY INCIDENT (MCI) / "DISASTER" PRIORITY ACTIONS (Continued)

Consistent with New England EMS Council MCIManagement the action priorities for the first medical crews arriving on the scene are:

1. Asses and avoid exposure to existing dangers.
2. Notify dispatch of type of MCI and estimate of number and type of patients.
   A. Request EMS, fire, police assistance.
   B. Request hospital notification.
3. First ambulance or other vehicle with medical frequencies becomes EMS command vehicle - locate near fire and police command vehicles. Strip equipment/supplies - place in equipment area (near planned patient collection/treatment area).
4. Designate, in the following order, the following positions as qualified personnel become available:
   EMS SCENE CONTROL OFFICER - Reports to incident Commander. Responsible for overall patient triage, treatment, and transportation. Procures EMS back-up, supplies, equipment, transport vehicles as needed, supervises and assigns all other medical personnel.
   PRIMARY TRIAGE OFFICER - Rapidly assesses all patients then assigns personnel to provide treatment to those patients in most need of immediate treatment, who will most benefit from immediate care with the resources available. Treatment is limited to:
   - Bleeding - rapid pressure dressing if severe
   - Airway - reposition patient
   - Shock - elevate extremities

   SECONDARY TRIAGE OFFICER - Rapidly tags all patients, or assigns personnel to do tagging with METTAGS, supervises immobilization after classification, and oversees transfer to collection/treatment area.

MASS CASUALTY INCIDENT (MCI) / "DISASTER" PRIORITY ACTIONS (Continued)

Tag categories are:

RED (I): Conditions requiring immediate transport by ambulance to prevent jeopardy to life or limb and which will not unduly deplete personnel/equipment resources (examples: progressive shock, major blood loss, major multiple injuries, severe respiratory distress. Cardiac arrest - only if personnel can be spared).

YELLOW (II): Not requiring immediate transport to prevent jeopardy to life or limb, but, eventually will require ambulance transport to hospital for attention.

GREEN (III): Minor conditions probably not requiring ambulance transport to hospital.

BLACK (O): Are obviously dead, or dying from lethal injuries, or requiring CPR when no personnel available to do so without comprising other patients.

TREATMENT OFFICER -Sets up / supervises patient collection / treatment area. Reassesses and retags (if necessary) patients, assigns patients and personnel to treatment areas. Prioritizes for transport. Coordinates with Loading/Transport officer to make single radio transmission to receiving facility (pt. ID#, METTAG priority, nature of injury, ambulance, and ETA ONLY).

LOADING OFFICER - Stages ambulances in holding area. Instructs crews to put all available equipment in equipment area. Assigns patients to vehicles. Directs drivers to hospital(s). Instructs not to contact hospital unless Medical Control required for condition change. Notifies hospital, or coordinates communication to hospital with Treatment Office (see above). Records departure times, hospital notification times, patient ID#'s and destination of all transporting vehicles.

SUGGESTED SCENE ORGANIZATION:

INCIDENT COMMAND POST

EMS SCENE CONTROL OFFICER

EQUIPMENT

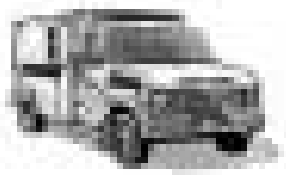
AMBULANCE LOADING

I N C I D E N T S C E N E

RED

PRIMARY TRIAGE OFFICER

LOADING OFFICER



TREATMENT OFFICER

YELLOW

SECONDARY TRIAGE OFFICER

GREEN

TRIAGE / HOLDING AREA

CHILD ABUSE
MANAGEMENT AND REPORTING
(Title 22, Subchapter II, Subsection 4011)

As an EMS provider you must report immediately to Child Protective Services any child who you have "reasonable cause to suspect" has been abused or will be abused. Failure to do so is punishable as a civil violation. It is not enough to tell someone else of your suspicions. If a child is abused and unreported, there is a 50% chance that the child will be abused again and a 10% chance that the child will die from future abuse.

POSSIBLE INDICATORS OF ABUSE

1. Injured child under two years of age, especially hot water burns or fractures.
2. Facial, mouth, or genital injuries.
3. Multiplanar injuries (front and back, right and left) - especially when not over bony prominences.
4. Injuries of different age (new and old).
5. Poor nutrition, poor care.
6. Delay in seeking treatment.
7. Vague, inconsistent, or changing history.
8. The Comatose child. The child in shock. The child in arrest.
   "See Pink 9"

TREATMENT OF SUSPECTED CHILD ABUSE IN THE FIELD

1. Suspect abuse. Keep your suspicions to yourself. Do not question or accuse the caretaker.
2. Protect the child. Call the police if necessary.
3. Treat the injuries according to standard protocol.
4. Convey your impressions to the hospital staff.
5. Write a detailed descriptive report. This report will likely become a legal document. Do not make a diagnosis of abuse. Simply describe your findings in detail.
6. Make a report. Call the Adult's and Children's Emergency Services number to make a report. 1-800-452-1999 (24 hours a day). You will be protected by law from civil liability for making such a report.

ADULT ABUSE

(Title 22 MRSA, Chapter 1-A, Subsection 3477)

"Reasonable cause to suspect. When, while acting in a professional capacity, an...ambulance attendant, emergency medical technician...suspects that an adult has been abused, neglected or exploited, and has reasonable cause to suspect that the adult is incapacitated, then the professional shall immediately report or cause a report to be made to the department."

Call the Adult's and Children's Emergency services: 1-800-452-1999 (24 hours a day). Similar protection from liability for reporting exists.

INTOXICATED DRIVERS
(Title 29-A, Subchapter 1, Subsection 2405)

"Persons who may report. If, while acting in a professional capacity an...emergency medical services person...knows or has reasonable cause to believe that a person has been operating a motor vehicle, hunting or operating a snowmobile, all-terrain vehicle or watercraft while under the influence of intoxicants and that motor vehicle, snowmobile, all-terrain vehicle or watercraft or a hunter has been involved in an accident, that person may report those facts to a law enforcement official."

Immunity from civil liability for making such a report exists in Maine law.

BIO-TERRORISM/WMD

If you suspect a chemical or biological agent threat, call your local law enforcement agency immediately.

Maine Bureau of Health Emergency Reporting and Consultation
1-800-821-8521
Maine National Guard 11th Civil Support Team (WMD)
(207) 873-9591
Maine Emergency Management Agency
(207) 626-4503

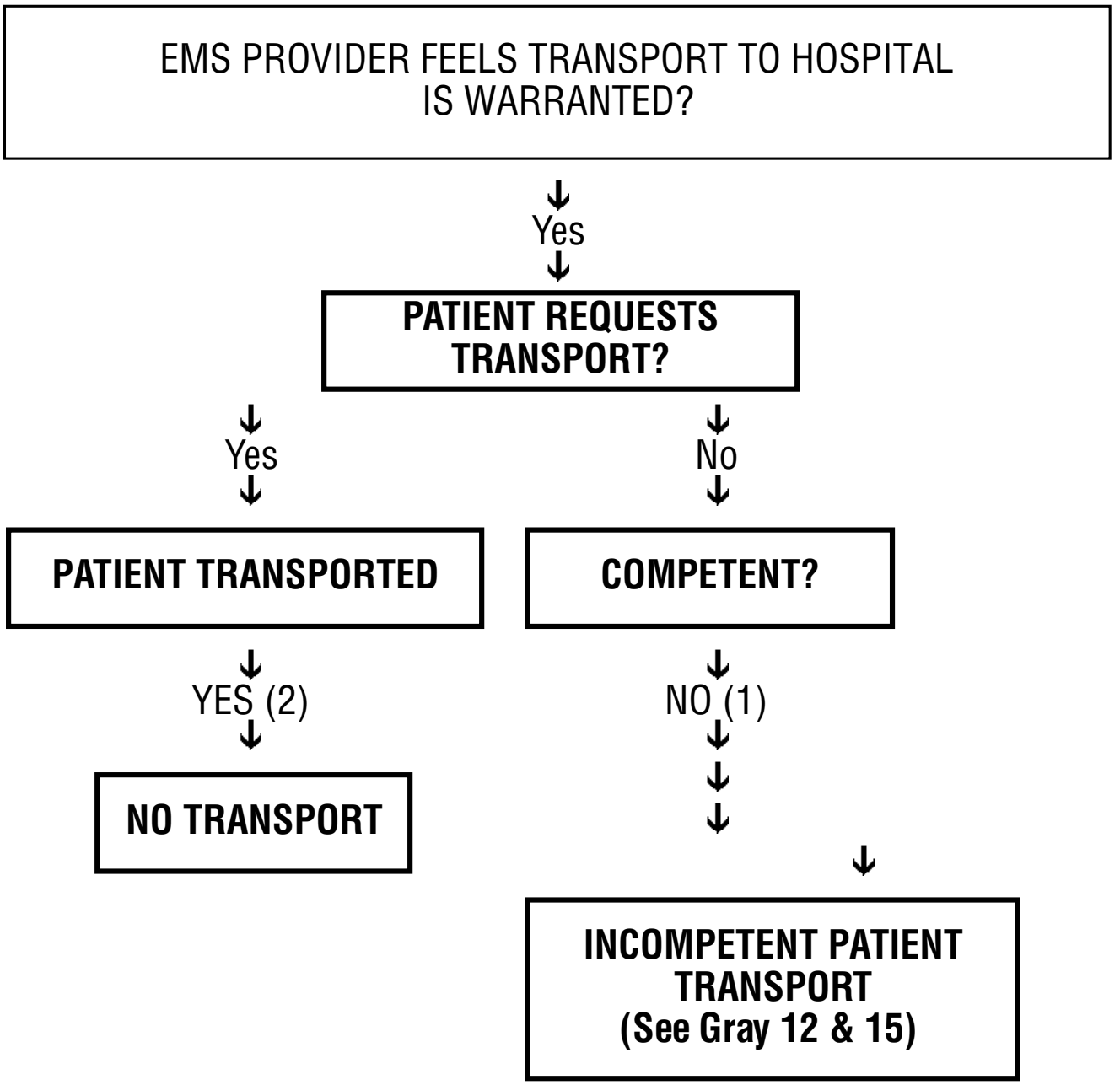
Patient Restraint – General

There are situations in which EMS personnel may appropriately restrain patients, (e.g. hypoxic patient). However, EMSpersonnel are not expected to restrain patients if this creates a threat of substantial physical harm to themselves.

"A licensed physician, or a person acting under his direction, may use force for the purpose of administering a recognized form of treatment which he reasonably believes will tend to safeguard the physical or mental health of the patient, provided such treatment is administered in an emergency relating to health when the physician reasonably believes that no one competent to consent for the patient, can be consulted and that a reasonable person concerned for the welfare of the patient would consent." (Title 17-A, subsection 106). Contact Medical Control or the patient's physician for this type of direction.

Finally, a person believed by a law enforcement officer to be mentally ill and who presents a threat of imminent and substantial physical harm to self and others, may be taken into protective custody by the officer. EMS personnel may follow the directions of this officer with regard to restraint. (Title 34-B, Subsection 3862.)

TRANSPORT PROTOCOL



*AN INCOMPETENT PATIENT WOULD BE ONE WHO IS: INTOXICATED, CONFUSED, DELIRIOUS, PSYCHOTIC, COMATOSE, UNABLE TO UNDERSTAND THE LANGUAGE, OR IS A MINOR, ETC.

1. THERE IS A QUESTION OF COMPETENCY OR THE PATIENT DOES NOT APPEAR TO UNDERSTAND THE CONSEQUENCES OF HIS/HER REFUSAL TRANSPORT.
2. THE PATIENT IS INFORMED OF THE CONSEQUENCES OF HIS/HER REFUSAL TO BE TRANSPORTED. THIS MUST BE DOCUMENTED IN THE PATIENT/RUN REPORT.
3. THIS SCREENING MAY TYPICALLY ARISE WHEN AN AMBULANCE IS REQUESTED BY SOMEONE OTHER THAN THE PATIENT (E.G. THE POLICE, A BYSTANDER). EMS RUN REPORT MUST ALWAYS BE COMPLETED.
4. IF THE PATIENT REQUESTS TRANSPORT OR IS JUDGED TO BE INCOMPETENT. THE EMT MUST SPEAK DIRECTLY WITH MEDICAL CONTROL. IF UNABLE TO REACH MEDICAL CONTROL, THE PATIENT IS TRANSPORTED.

TRANSPORT OF MENTALLY ILL PATIENTS

Maine EMS personnel are generally called to transport a mentally ill patient in one or two situations:

Emergency Transport

Safety for the patient and the crew is the primary concern in the transport of the mentally ill patient. Personnel should make sure they do a thorough evaluation of the patient to find and treat possible medical causes of the behavior.

EMS personnel are authorized under Maine law as physician extenders to physically restrain any patient who poses a threat to themselves or others. Providers are cautioned to use physical restraint as a last resort, preferable with the assistance of local law enforcement. Once the decision is made to restrain a patient, the patient should remain restrained until arrival at the emergency department unless it interferes with the delivery of medical care.

Non-Emergency Transfer

Mentally ill patients who are being transferred usually fall into one of these categories:

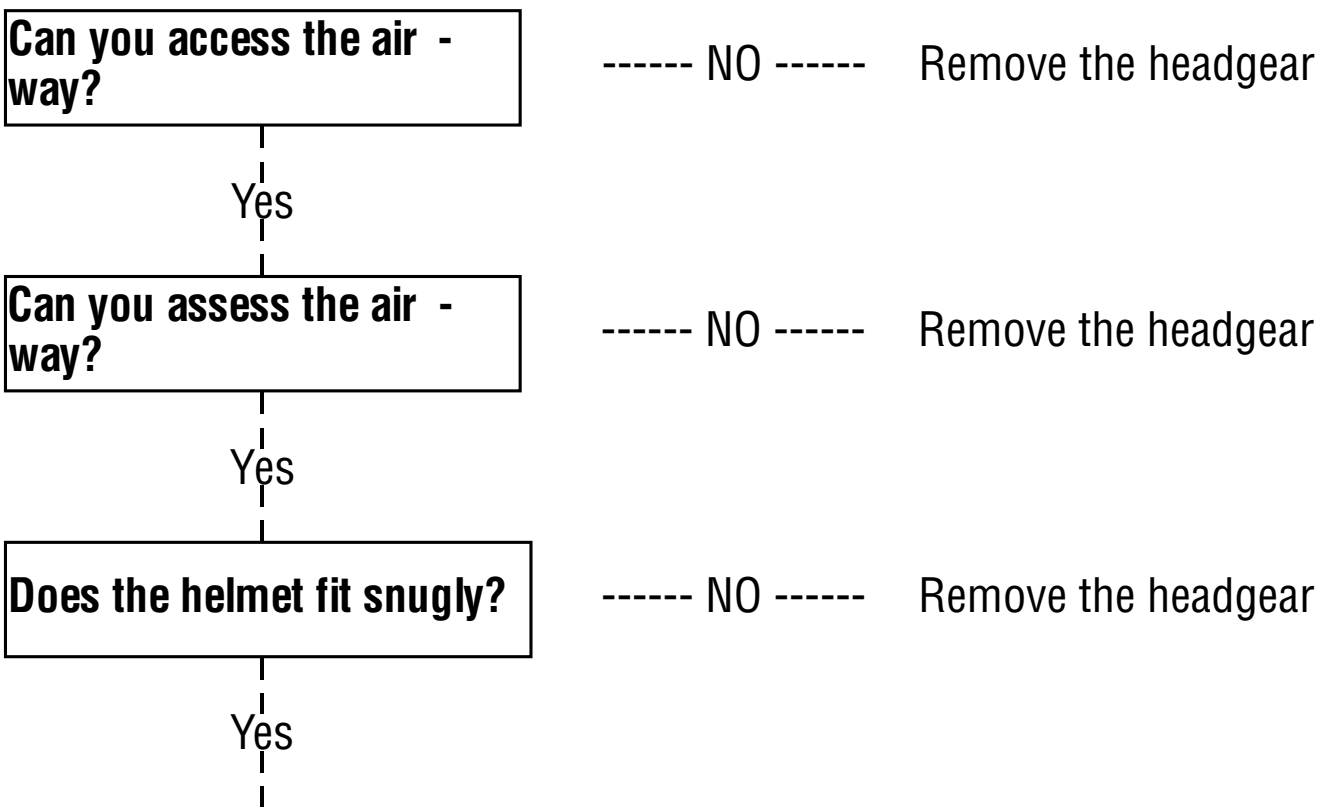
Voluntary Committal – These patients have agreed to be transferred to a facility for evaluation and treatment of an underlying mental illness. It is important to get a thorough report on the patient prior to transport to avoid surprises en route. Voluntary committal patients can change their mind during transport. In this case, it is the responsibility of the EMS personnel to discharge the patient at a safe location, *preferably at the originating facility*. If it is not possible to return the patient to the originating facility, notify local law enforcement to meet you at your location.

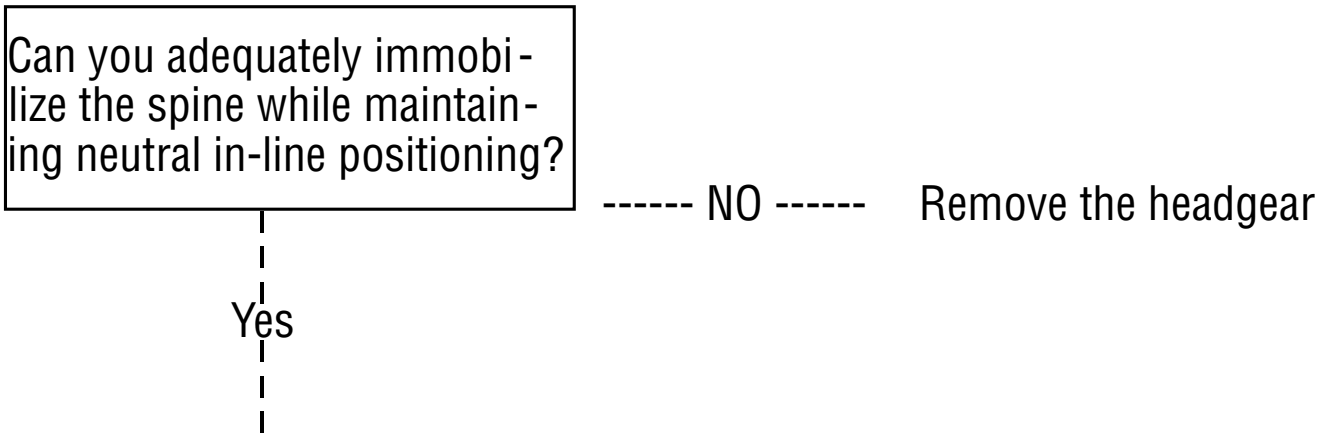
Involuntary Committal – Patients who are being committed involuntarily must have committal papers (blue papers) completed prior to transport. Between the hours of 7am and 11pm a judge has to sign the committal papers. After 11pm and before 7am the papers do not have to be signed. Make sure that the transporting service is listed correctly on the papers. According to Maine law, the patient must be transported in the least restrictive form of transportation available. Make sure you get a thorough history to determine whether restrains will be necessary. If the receiving facility refuses to accept the patient after evaluating them, the transporting service is required by law to transport the patient back to the originating facility.

PROTECTIVE HEADGEAR REMOVAL

The decision to remove protective headgear from an injured patient rests with the EMS provider on scene unless a Main licensed Physician is on scene and takes responsibility for the patient. It is important to immobilize the patient in a neutral in-line position, regardless of whether or not you choose to remove the helmet. This requires that you evaluate each patient and determine if other equipment (i.e. shoulder pads) must be removed or if additional padding under the shoulders or head is necessary. *In the case of an athletic injury, the EMS provider should consider input from athletic trainers. Disputes should be referred to On-Line Medical Control for resolution.*

When deciding whether to remove protective headgear, please evaluate the following criteria:





You can choose to leave the helmet in place
if you feel it is in the best interest of patient care.

DEFIBRILLATION / CARDIOVERSION SETTING

DEFIBRILLATION SETTING*

	Initial	Second	Third	Subsequent
Adult	200J	200-300J	360J	360J
Pediatric	2 J/kg	4 J/kg	4 J/kg	4 J/kg

CARDIOVERSION SETTING*

	Initial	Second	Third	Subsequent
Adult (V-TACH)	100J	200 J	300 J	360 J
ADULT (SVT)	50 J	200 J	200 J then 300 J	360 J
Pediatric	0.5 J/kg	1 J/kg	1 J/kg	1 J/kg

*Use closest machine setting possible.

For biphasic defibrillation device, use equivalent biphasic settings – accelerating or fixed per mfg setting/recommendations.

DRUG DOSAGE TABLE

Weight (lb)	22	44	66	88	110	132	154	220
Weight (kg)	10	20	30	40	50	60	70	100
Adenosine **Pediatric dose:** 0.1 mg/kg. **Adult dose**: 06-12mg.								
Albuterol (ml) (0.5% sol.)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Atropine (mg) P**ediatric dose:** 0.02 mg/kg (min. dose: 0.1 mg, max. dose: 0.5 mg(child) to 1.0 mg (adolescent).								
Atropine (mg) **Adult dose:** 0.5 mg.								
Atropine (mg) (asystole) **Adult dose:** 1.0 mg: max. total doses: .04 mg/kg.								
Demerol IV (mg)	5	10	15	20	25	25	25	25
Dextrose (grams)	5	10	15	20	25	25	25	25
Diazepam (mg)	2	4	6	8	10	10	10	10
Diphenhydramine IM/IV (mg)	10	20	30	40	50	50	50	50
Dopamine (Recommended starting dose)								
(mcg/min)	100	200	300	400	500	600	700	1000
(mcgtts/min)	4	8	11	15	18	22	26	38
Epinephrine (mg) (VF/Pulseless VT)	1	1	1	1	1	1	1	1
Furosemide **Initial adult dose:** 0.5 to 1.0 mg/kg								
Glucagon (mg)	0.5	0.5	0.5	0.5	1.0	1.0	1.0	1.0
Lidocaine (mg)	10-15	20-30	30-45	40-60	50-75	60-90	70-100	100
Magnesium (g)	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2
Morphine IV (mg)	0.5	1.0	1.5	2.0	2-5	2-5	2-5	2-5
Narcan (mg)	2	2	2	2	2	2	2	2
Promethazine **Adult dose:** 12.5 o 25 mg; 25 mg as adjunct to narcotic administration.								

ENDOTRACHEAL TUBE SIZES

Age	ET Tube Size ID(mm)	Suction Catheter Size
Premature Newborn	2.5, 3.5*	5-6 F
Term Newborn	3.0, 3.5	6-8 F
6 months	3.5, 4.0	8 F
1 year	4.0, 4.5	8 F
2 years	4.5, 5.0*	8F
4 years	5.0, 5.5*	10 F
6 years	5.5*	10 F
8 years	6.0**	10 F
10 years	6.5**	12 F
12 years	7.0	12 F
Adult	7.0 – 9.0	12 F – 14 F

*Uncuffed
**Cuffed or uncuffed

REMINDER: Lidocaine*, Epinephrine, Atropine*, and Narcan ("Lean"), can be given via the ET Tube if an IV route is unavailable and an ET Tube is in place. Double the IV dosage, flush with LR/NS (3-5 ml for pediatric patients; up to IO ml for adults), and follow with several positive pressure ventilations. Do not rely on this route throughout – attempt IV access.
*Except in pediatric patients.

For ET size, pinky finger diameter in a child affords an acceptable approximation of OD. The formula "$\frac{\text{AGE (Yrs)}}{4} + 4$"
and the Broselow Tape may be used for ID determination.
Using a tube one size larger or smaller than these guidelines is also acceptable.

RATE CONVERSION CHART

(ml/hr to gtts/min.)

Drip Rate in gtts/min

IVrate ordered in ml/hr.	15 gtts/ml (Abbott)	10 gtts/ml (Travenol)	20 gtts/ml (Cutter)	60 gtts/ml (Microdrip)
1	0	0		1
5	1		2	5
10	3	2	3	10
20	5	3	7	20
30	8	5	10	30
40	10	7	13	40
50	13	8	17	50
75	19	13	25	75
100	25	17	33	100
125	31	21	42	125
150	38	25	50	150
200	50	33	67	200
300	75	50	100	300
To get gtts/min., you may also divide the order given in ml/hr by:	4	6	3	1

INTRAVENOUS ADMIXTURES

LIDOCAINE: Mix 2 grams in 500 ml in LR. Makes 4 mg/ml.

To Run:	Use Microdrip Set at:
2mg/min	30 gtts/min
3mg/min	45 gtts/min
4mg/min	60 gtts/min

-For 2 grams mixed in 250 ml IV fluid, run at half the gtts/min rate to achieve same mg/min.

DOPAMINE: Mix 800 mg in 500 ml IV fluid. Makes 1600 micrograms ml (mcg/ml).

Dopamine drip Rate
(mcgtts/min.)

Weight

	lbs	88	132	176	220
	kg	40	60	80	100
Mcg/kg/min					
5		7	11	15	19
10		15	23	30	38
20		30	46	60	76

MAINE EMS DRUG/MEDICATION LIST

The following are medications currently approved for use by Maine EMS licensees – as authorized by the Maine EMS Protocols . this list may be altered through protocol revision.

Prehospital and Interfacility Medications:

Activated Charcoal (without sorbital)
Adenosine
Albuterol
Aspirin
Atropine
Cyanide poisoning kit contents
Dextrose (D10, D50)
Diazepam
Diphenhydramine
Dopamine
Epinephrine (1:1000, 1:10,000)
Furosemide
Glucagon

Heparin Solution (for use in maintaining IV access in a heparin lock only; otherwise this is not considered a prehospital medication. Approved also at Intermediate level).

Lidocaine
Magnesium Sulfate
Meperidine
Morphine
Naloxone
Promethazine
Sodium bicarbonate
Nitroglycerin (Non-parenteral)
Nitrous Oxide
Thiamine

D5W, Ringers Lactate, Normal Saline, and other generally accepted IV solutions are approved for administration at or above the Intermediate level and for monitoring at or above the EMT level

The following are Paramedic Interfacility Program medications only:

Heparin Drip
Nitroglycerin Drip
Potassium
Diltiazem
Antibiotics
Insulin
TPN
Midazolam
Procainamide
Vitamin Drip
Glycoprotein IIb/IIIa Platelet Anatagonists
Lorazepam
Haloperidol

TELEPHONE / RADIO REFERENCES

NAME **PHONE #**

Hospital:
Hospital:
Hospital:
Hospital:
Hospital:
Hospital:
Dispatch:

Maine EMS:Phone 287-3953; Fax 287-6251
e-mail: Maine.ems@state.me.us
www.state.me.us/dps/ems
Jay Bradshaw, EMT-P, Director
Drexell White, EMT-P, Licensing Agent
Dawn Kinney, EMT-P, Licensing Agent
Dwight Corning, EMT-P, Training & Education Coordinator
Medical Director: John Burton, M.D.

Region 1 – Southern Maine EMS – 741-2709
e-mail: smems@smems.org
Donnie Carroll, Coordinator
Medical Director: Eliot Smith, M.D. 363-4321

Region 2 – Tri-County EMS – 795-2880
e-mail: info@tricountyems.org
Joanne LeBrun, Coordinator
Medical Director: David Stuchiner, M.D. 795-2870

Region 3 – Kennebec Valley EMS – 877-0936
e-mail: office@kvems.org
Rick Petrie, Coordinator
Medical Director: Steven Diaz, M.D. 872-1307

Region 4 – Northeast EMS – 942-4669
e-mail: neems@midmaine.com
Danel Bahr, Coordinator
Medical Director: Paul Liebow, M.D. 973-8005

Region 5 – Aroostook EMS – 492-1624
e-mail: aems@mfx.net
James Caron, Coordinator
Medical Director: Beth Collamore, M.D. 498-1129

Region 6 – Mid-Coast EMS – 785-5000
e-mail: mcems@mint.net
Bill Zito, Coordinator
Medical Director: David Ettinger – 596-8333

Bio-Terrorism/WMD

If you suspect a chemical or biological agent threat, call your local law enforcement agency immediately.

Maine Bureau of Health Emergency Reporting and Consultation
1-800-821-8521
Maine National Guard 11th Civil Support Team (WMD)
(207) 873-9591
Maine Emergency Management Agency
(207) 626-4503

NON-EMS SYSTEM
MEDICAL INTERVENERS

Thank you for your offer of assistance.

Please be advised that these Emergency Medical Technicians are operating under the authority of the state of Maine and under protocols approved by the state of Maine. These EMS providers are also operating under the authority of a Medical Control physician and standing medical orders.

> If you are currently providing patient care, you will be relinquishing care to these EMS personnel **and their Medical Control physician** .

No individual should intervene in the care of this patient unless the individual is:

1. requested by the attending EMT, **and**
2. authorized by the Medical Control physician, **and**
3. is capable of assisting, or delivering more extensive emergency medical care at the scene.

If you are the patient's own physician, PA, or nurse practitioner, the EMts will work with you to the extent that their protocols and scope of practice allow .

If you are not the patient's own physician, PA, or nurse practitioner , you must be a Maine licensed physician who will assume patient management and accept responsibility. These EMT's will assist you to the extent that their protocols and scope of practice allow. They will not assist you in specific deviations from their protocols without Medical Control approval. This requires that you accompany the patient to the hospital, or that their Medical Control physician is contacted and concurs.